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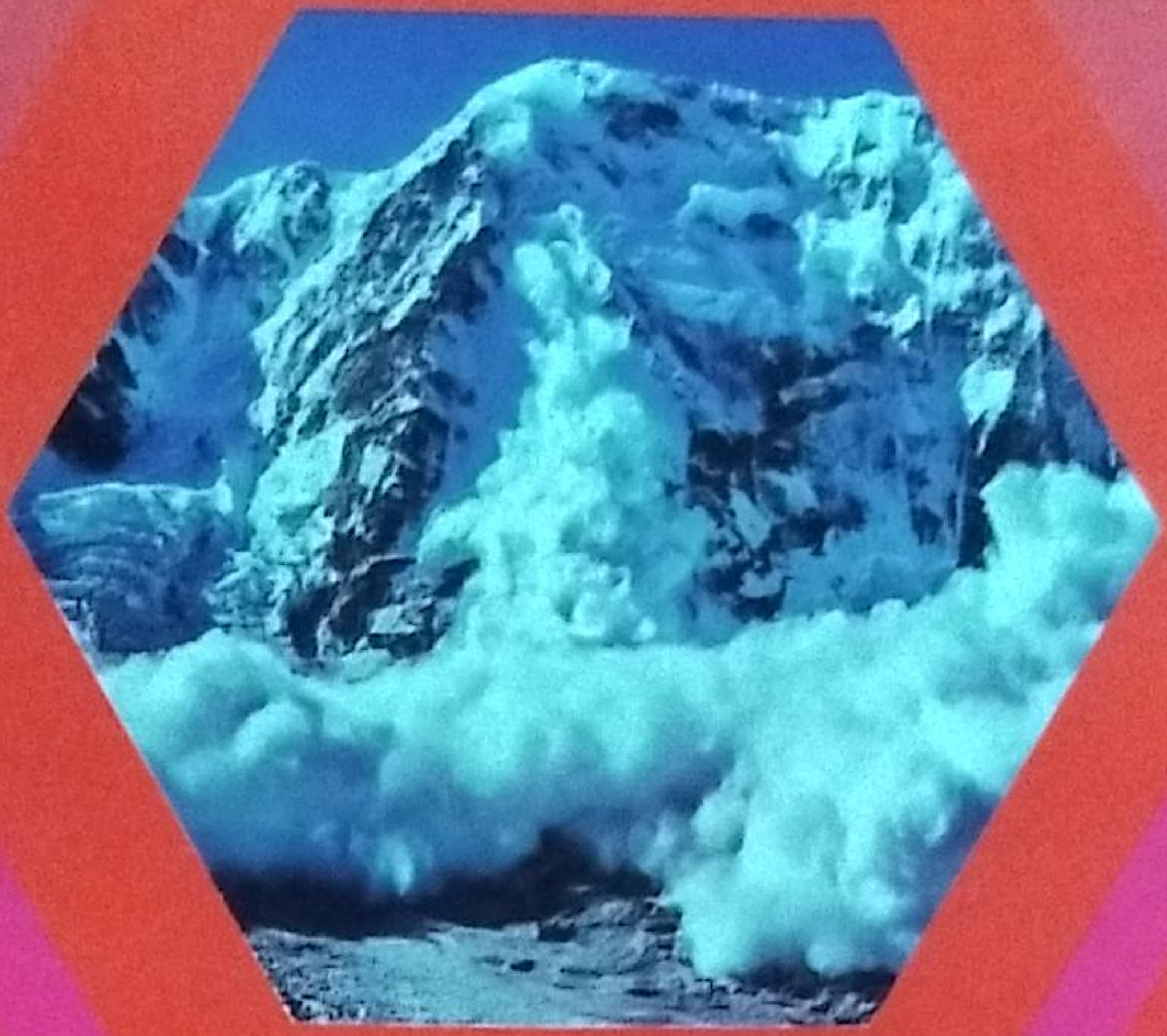

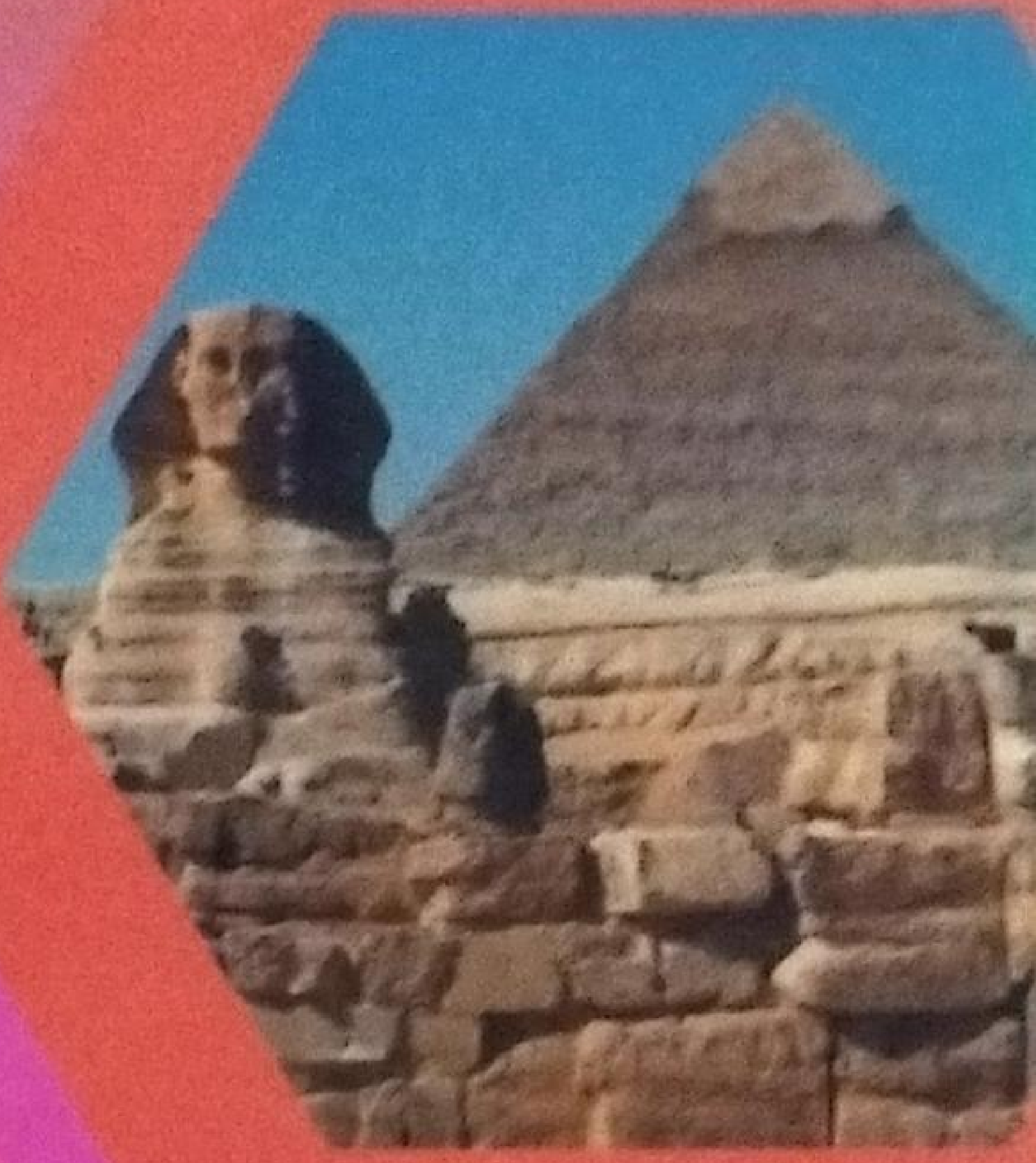

Gateway to
Social Science

As per the **NEW NCERT Syllabus**
and the **Latest CBSE Examination Pattern**

Class 9
(Part 1)

Secondary Stage

GOYAL BROTHERS PRAKASHAN

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Preface

Social Science plays a vital role in helping young learners understand the world around them and their place within it. **Gateway to Social Science** for Grade 9 has been carefully designed to introduce students to the interrelated disciplines of **History, Geography, Political Science, and Economics** in a meaningful, engaging, and learner-friendly manner.

This book follows the **new NCERT** syllabus and focuses on building **conceptual clarity, critical thinking, and real-life application** of knowledge. The themes covered—from the understanding of Earth's surface and climate, the beginnings of civilisation, and the evolution of society and governance, to democracy, elections, and basic economic concepts—help students develop a balanced perspective of the natural and social world.

Salient Features of the Course Book

- The book follows a **concept-based, thematic, and learner-centred approach,** focusing on essential ideas and key themes rather than excessive facts and data.
- Each chapter is structured around **clear learning outcomes** to help students understand what they are expected to learn and achieve.
- **Rich visuals** such as maps, diagrams, illustrations, timelines, and charts are used extensively to support better comprehension and retention.
- **Key Concepts** highlight the main ideas and core themes of the chapter.
- **Did You Know?** shares interesting and additional facts to spark curiosity.
- **An Excerpt** links the chapter to real texts or sources for better context.
- **Engage and Reflect** encourages critical thinking, discussion, and real-life application.
- **Key Learnings** summarise the important points for quick revision.
- **Glossary** explains key terms in simple language for better understanding.
- Each lesson includes a **wide range of exercises,** including MCQs, assertion–reason questions, case-based questions, very short, short and long answer questions, and map-skill tasks, aligned with CBSE assessment patterns.
- The content encourages the development of **democratic values, environmental awareness, economic reasoning, and social responsibility** among learners.
- The language is **simple, age-appropriate, and learner-friendly,** making the subject accessible and enjoyable for learners.
- **AI Buddy** is a smart companion that offers an **AI Query Resolver** for instant answers, **Play with AI** for fun learning, and **Topic-wise Notes** for practice.

It is hoped that this book will prove useful and enriching for both teachers and students. Constructive suggestions from parents, pupils, teachers, and educationists are most welcome and will be gratefully acknowledged for further improvement.

The Publisher

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Theme I : Understanding Social Science

1

Social Science: Meaning, Scope, and Importance

KEY CONCEPTS

- Meaning of Social Science
- Scope of Social Science
- Relevance of Social Science
- Guiding values in Social Science
- Understanding Social Science from an Indian Perspective

MEANING OF SOCIAL SCIENCE

Human beings are social by nature. From birth, each person becomes part of a family and gradually becomes connected to wider groups such as neighbours, classmates, friends, and co-workers. People live in villages, towns, and cities where they depend on one another for safety, livelihood, learning, and well-being. They share public spaces and resources such as water, roads, schools, hospitals, markets, parks, and workplaces. They also share ideas, customs, languages, beliefs, and responsibilities. Because life is lived together, the actions of one person can affect many others. Social Science is the study of these connections and shared arrangements.

Social Science: Key definitions by Scholars and Authors

- **James High:** Defined it as "bodies of learning and study which recognise the simultaneous and mutual action of physical and non-physical stimuli which produce social relations".
- **Charles Beard:** Described it as a "body of knowledge and thought pertaining to human affairs as distinguished from sticks, stones, stars and physical objects".

Social Science studies society in a careful, organised, and systematic way. It does not rely only on personal opinions or assumptions. It asks questions, collects information, compares evidence, and builds explanations. It helps us to understand how people live together, how groups are formed, how rules and institutions develop, and how societies change over time. It also encourages us to think about fairness and responsibility by examining who gains from a decision, who loses, and why.

Social Science can be understood as the study of two closely related aspects of human life:

- **People and their relationships:** This includes the ways in which people interact and support one another in everyday life. It covers family life, community living, social customs, religious and cultural practices, roles and responsibilities, and patterns of behaviour. For example, Social Science may explore how families make decisions, how communities celebrate festivals, how different languages are used in public life, or how social rules influence what people can or cannot do.

- **Systems and institutions:** This includes the organised structures that shape how society works. Institutions such as government, law, courts, schools, police, markets, banks, and local bodies influence daily life. They decide how resources are shared, how public services are provided, and how rights and duties are protected. For example, Social Science may study how elections are held, how laws are made, how budgets affect public services, or how trade and prices influence what families can afford.

Social Science does not only describe what happens in society. It also asks why it happens and what its effects are. It looks for causes and consequences. It tries to understand patterns, such as why some regions develop faster than others, why some communities have better access to clean water, or why certain forms of work are valued more than others.

Consider a situation where some children find it easier to complete schooling than others. Social Science encourages us to ask questions such as:

- Are schools located far from certain villages or settlements?
- Do families have enough income to afford uniforms, books, and transport?
- Do historical disadvantages or social discrimination affect people's opportunities in education, employment, and social mobility?
- Do government policies support all citizens equally, including girls and children with disabilities?

These questions show that social situations usually have more than one cause. A single issue can have geographical, economic, political, and historical reasons at the same time. Social Science helps us to connect these reasons and develop a fuller understanding.

By studying Social Science, we begin to see that society is not fixed. It is shaped by human choices and actions. People create rules, institutions, and traditions, and people can also improve them. This understanding supports responsible citizenship. It helps us to develop awareness about society and prepares us to make informed decisions in own daily lives.

AN EXCERPT

Social Science is a systematic study of human society and the relationship between the individual and society, social institutions, and organisations. It draws its content from the disciplines of History, Geography, Political Science, and Economics, to provide an interdisciplinary understanding of society and its functions. At the heart of Social Science education lies an understanding of the world, the diverse concerns of human society, and participating in it as empathetic and responsible citizens.

Source: National Curriculum Framework for School Education (NCF-SE) 2023

KEY LEARNINGS

- Social Science studies how people live together through relationships, shared spaces, customs, and responsibilities.
- It examines systems and institutions such as government, law, schools, markets, and courts that shape people's daily lives.
- It uses organised inquiry, evidence, and reasoning rather than assumptions or personal opinion.
- It explains social issues by linking causes and consequences, often across geography, history, economics, and politics.

SCOPE OF SOCIAL SCIENCE

The scope of Social Science refers to the wide range of questions and areas it studies in order to understand human life in society. Human beings live in communities, depend on nature and resources, earn livelihoods, follow rules, and participate in collective decision making. Because these aspects of life are closely connected, no single subject can explain society fully. Social Science therefore brings together several disciplines to build a fuller picture of society and to help us understand the world carefully and responsibly.

At the school level, Social Science is commonly organised around four core disciplines:

- Geography
- Political Science
- History
- Economics

These disciplines have distinct questions and methods, yet they overlap in real life. Social Science becomes meaningful when we connect ideas across these areas and use evidence to understand society, environment, economy, and governance together.

Geography as a Discipline

Geography studies the Earth as the home of human beings. It helps us understand landforms, climate, rivers, soils, forests, and resources. At the same time, it studies how people live in different places and how they use the environment.

Geography answers questions such as:

- Why do some places receive more rainfall than others?
- Why are some regions densely populated while others are not?
- How do climate and soil influence agriculture?
- How do natural resources affect industries and livelihoods?

Our Earth

Geography helps us see that human life is closely linked to physical conditions. For example, farming practices in a dry region differ from those in a region with heavy rainfall. Similarly, coastal regions may have fishing and sea trade, while mountain regions may depend on tourism, forests, or terrace farming.

Geography also helps us understand environmental challenges, such as floods, droughts, deforestation, pollution, and climate related risks. It encourages the value of sustainability because it shows that careless use of resources can harm both people and nature.

DID YOU KNOW? Geographers often use satellite images to study rivers, forests, cities, crops, and coastlines. This method is called remote sensing. It helps track floods, droughts, deforestation, and urban growth. It also supports disaster management by providing quick information during cyclones, earthquakes, and other natural hazards.

History as a Discipline

History studies the past, but its purpose is not only to remember dates or kings. It helps us understand how society has changed over time and why the present is shaped the way it is.

History explores:

- People and their lives in different periods
- Social and cultural developments
- The rise and fall of institutions and ideas
- Major events and changes
- Movements for freedom and justice

History is important because it helps us understand that today's society did not appear suddenly. Many present day institutions and practices have developed over long periods. For example, when we study India's freedom struggle, we learn about ideas of justice, equality, and rights. These ideas later influenced the making of our Constitution. In this way, History helps us understand why democratic values are important in modern India.

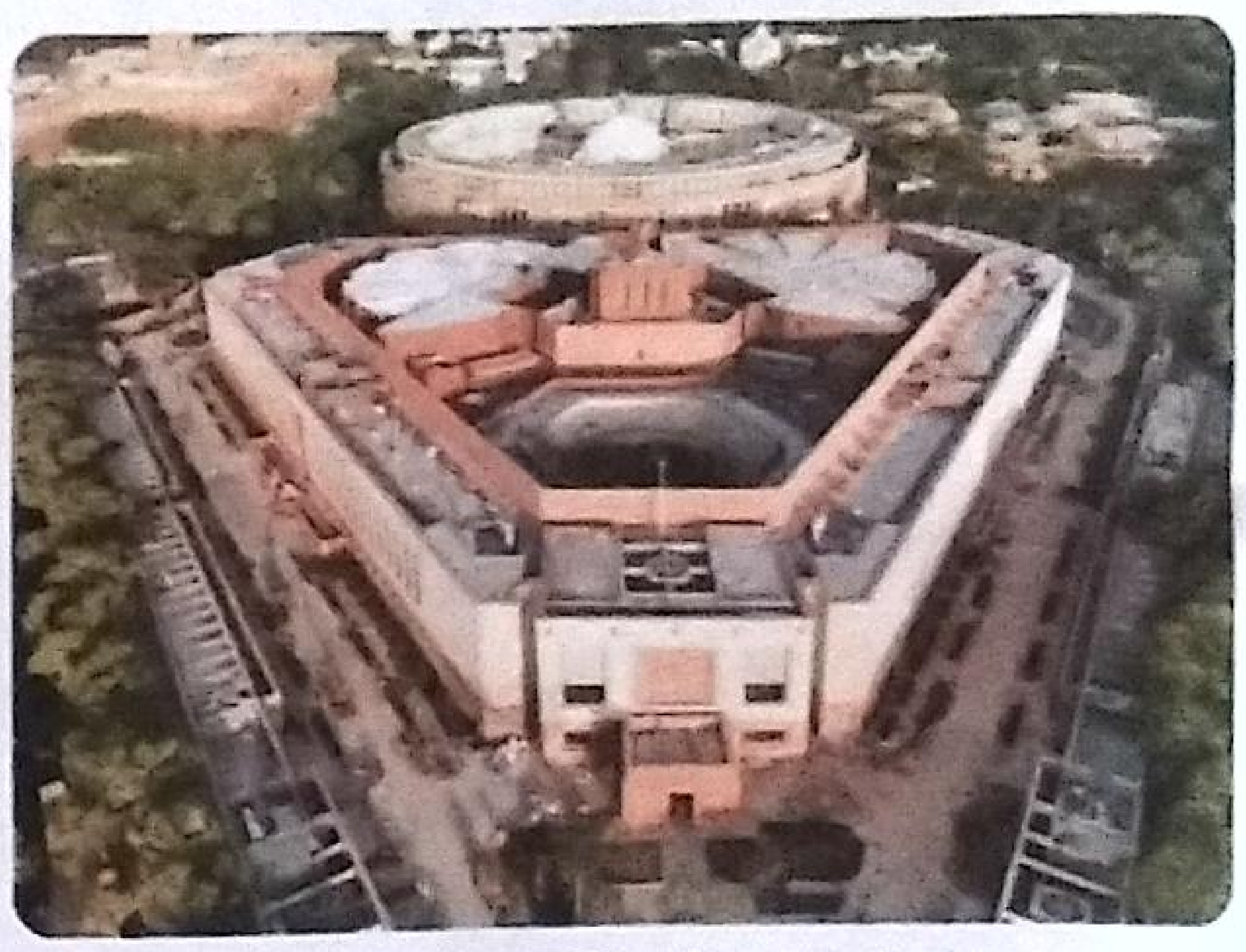
History also teaches us to respect diversity. India's past includes many languages, religions, art forms, and ways of living. By studying this richness, we can learn that diversity is not a weakness. It is a strength that has shaped Indian society.

Political Science as a Discipline

Political Science studies how societies are governed. It focuses on government institutions, laws, rights, duties, and the ways in which people participate in public life.

Political Science helps us understand:

- Why societies need rules
- How laws are made and implemented
- How governments work at local, state, and national levels
- What rights and duties citizens have
- How democracy functions through participation and representation



Indian Parliament

Political Science is closely linked to daily life. For example, when we use public services such as roads, schools, hospitals, and transport, we are experiencing governance. When we vote or discuss public issues, we are participating as citizens. Political Science helps students become aware land responsible citizens who understand both rights and responsibilities.

Political Science also supports inclusivity and equity by discussing equality before the law, protection of rights, and the responsibility of the state to support all citizens, especially those who are underprivileged.

Engage and Reflect

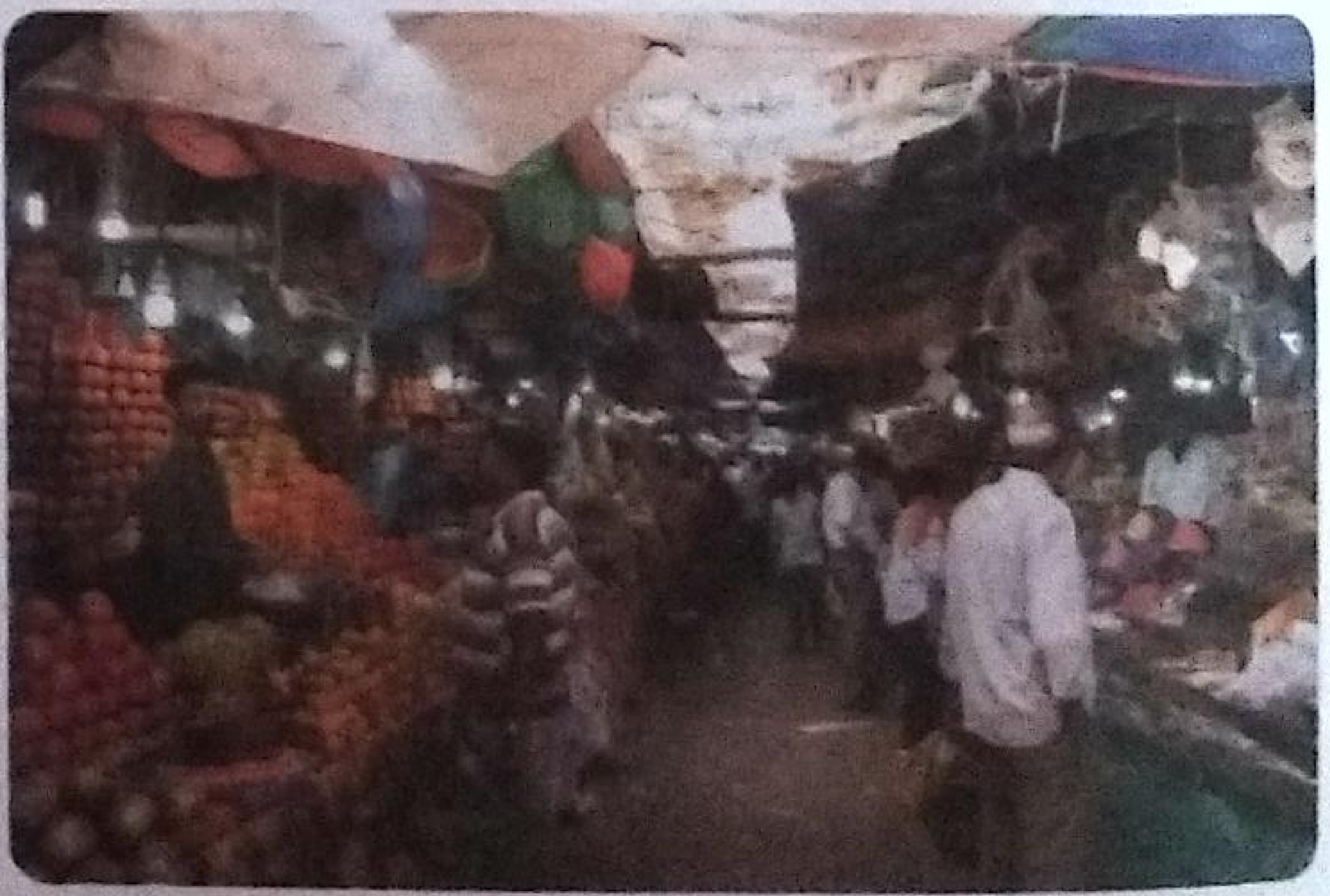
If you had to present one local problem to a local government body, what facts would you use to support your case, and what solution would you propose that is realistic and fair?

Economics as a Discipline

Economics studies how people and societies manage resources and make choices. Resources are limited, but human needs are unlimited. Economics helps us understand how goods and services are produced, distributed, and consumed, and how people earn a living.

Economics examines:

- Work and employment
- Markets and prices
- Income and expenditure
- Production of goods and services
- Poverty and development
- The role of government in the economy



A local market in India

Economics explains realities that we can observe around us. For example, a family may plan its spending based on income. A shopkeeper sets prices based on costs and demand. Farmers choose crops based on rainfall, soil, and market prices. These are economic decisions.

Economics also shows why equity matters. If some people have very limited access to education, healthcare, or jobs, they may remain trapped in poverty. Understanding this helps us to see why fair opportunities are necessary for a just society.

KEY LEARNINGS

- Social Science has a wide scope because society involves environment, livelihoods, rules, and collective decision-making.
- It brings together four core disciplines: Geography, History, Political Science, and Economics.
- Each discipline has its own questions and methods, but real life issues require connections across disciplines.
- Linking ideas across subjects helps us build fuller explanations of society, environment, economy, and governance.

RELEVANCE OF SOCIAL SCIENCE

Social Science is relevant because it helps us to understand our lives and the world around us. It connects classroom learning to everyday experiences. Its relevance can be understood through four important areas: society, environment, economy, and governance.

Social Science and Society

Every society has different groups and different ways of living. Social Science helps us understand how these differences develop and how people learn to live together.

For example, in India, people speak different languages, follow different religions, and practise different customs. Yet they share common spaces and institutions. Social Science helps us understand how unity is built in a diverse society. It also helps us identify social challenges such as discrimination, prejudice, and social exclusion, and encourages students to value inclusivity.

Inclusivity is not only an idea. It influences real decisions. For instance, schools that encourage equal participation among all students are practising inclusivity. Communities that ensure access to water and sanitation for everyone are practising inclusivity.

Social Science and the environment

Human beings depend on the environment for survival and development. We need land for farming and housing, rivers for water, forests for resources, and energy for work. Social Science helps us understand how human activity affects the environment, and how environmental changes affect human life.

For example, cutting forests may provide land for construction, but it can also lead to soil erosion, reduced rainfall, and loss of wildlife. Similarly, pollution may result from industrial growth, but it can harm health and agriculture.

By studying these links, Social Science encourages sustainability. Sustainability helps us to think beyond immediate gain and consider long term effects on nature and society.

SAVE THE
ENVIRONMENT

Social Science and the economy

Most families make daily economic choices. They decide how to earn a living, how to spend money, and how to save for future needs. Social Science helps students understand such choices not only at the family level but also at the level of society.

For example, when job opportunities grow in a city, people may migrate there for work. This can lead to growth, but it can also create pressure on housing, water supply, and transport. This shows how economic decisions affect society and the environment.

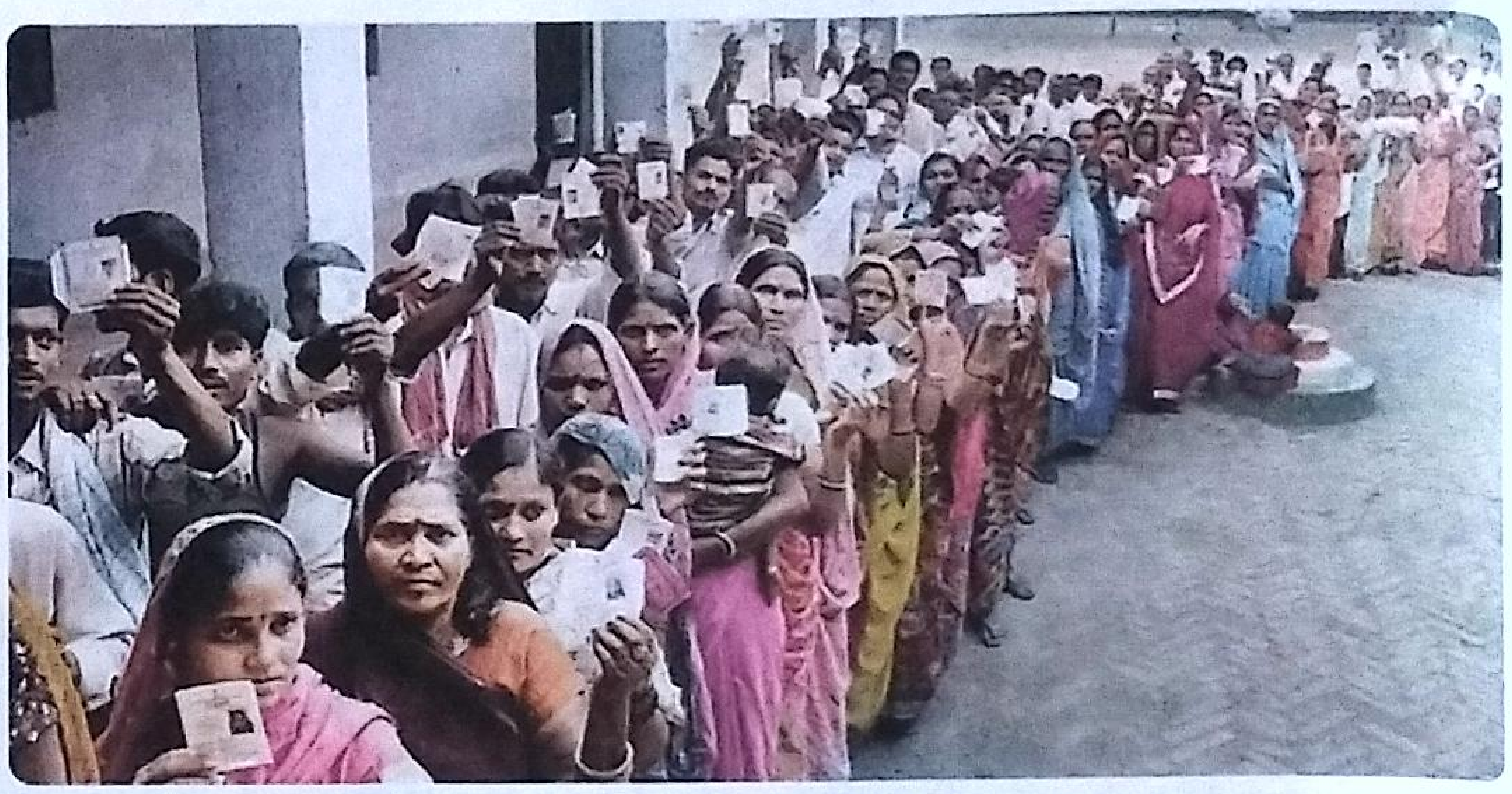
Economics also helps us to understand why development should not only mean more income. Development should also mean better education, health, safety, and dignity. This idea links to equity because development must benefit all, not only a few.

Social Science and governance

Governance shapes many parts of our daily life. Government decisions influence schools, hospitals, roads, law and order, and public welfare schemes. Social Science helps students understand how these decisions are taken and how citizens can engage with them.

For example, if a community faces a problem such as poor water supply, it can raise the issue through local bodies and elected representatives. Understanding governance helps students realise that democracy is not only about elections. It is also about participation, awareness, and accountability.

Political understanding also helps us to recognise the importance of equality and justice. If laws protect only some people and ignore others, society becomes unfair. Therefore, governance must support inclusivity and equity.



Voting at a booth

Interconnections of Social Science

Social Science becomes meaningful when we connect its disciplines. Many real-life issues cannot be understood through only one subject. They require combined thinking.

Consider the example of floods in a city.

- Geography helps us understand rainfall, river systems, land use, and drainage.
- History can explain how the city developed, where people settled, and how land was used over time.
- Economics helps us examine damage to livelihoods, costs of rebuilding, and how poverty makes some people more vulnerable.
- Political Science helps us understand the role of government in disaster management, public safety, and planning.

This example shows that Social Science is not a collection of separate subjects. It is a connected way of understanding real life.

KEY LEARNINGS

- Social Science connects classroom learning to everyday life by explaining society, environment, economy, and governance.
- It helps us understand diversity, discrimination, and social exclusion, and supports inclusivity in daily interactions.
- It explains how environmental change affects human life and why sustainability matters for long-term well-being.
- It shows how government decisions affect public services and why citizenship involves participation and accountability.

GUIDING VALUES IN SOCIAL SCIENCE

Social Science develops not only knowledge but also values. These values act as guiding principles when we examine society and when we make choices in daily life. In India, they connect closely with the constitutional ideals stated in the Preamble, especially justice, liberty, equality, and fraternity.

Guiding values help us in three important ways. First, they shape how we treat people and how we respond to difference. Second, they guide how we use natural resources and plan development. Third, they help us judge whether decisions, rules, and policies are fair and beneficial for all.

Diversity

Diversity means recognising and respecting differences among people. These differences may be seen in language, religion, region, caste, tribe, gender, age, occupation, physical ability, food habits, clothing, and cultural practices. Diversity exists naturally because communities have different histories, environments, and traditions.

Diversity in India

Understanding diversity involves more than noticing difference. It means understanding how diversity enriches society. In India, the variety of languages and cultural traditions can be seen in festivals, art, local crafts, architecture, music, and food. When we respect this variety, we strengthen social harmony and build a wider sense of belonging.

Diversity also requires us to be careful about stereotypes. Sometimes quick judgements are formed based on a person's language, clothing, occupation, or place of origin. A value-based approach encourages us to question such assumptions, understand reasons behind different practices, and treat every person with dignity. This supports fraternity, which is the idea that all citizens should relate to one another with respect and a shared sense of togetherness.

DID YOU KNOW? According to the 2011 Census of India, there are 121 languages and 1,369 rationalised mother tongues spoken across the country. Among these, 22 languages are recognised under the Eighth Schedule of the Indian Constitution, providing them with official status.

Inclusivity

It means ensuring that everyone feels welcomed, respected, and able to participate fully in shared spaces such as classrooms, playgrounds, neighbourhoods, and public institutions. It reminds us that some groups have faced exclusion or discrimination, and that fairness requires active steps to remove barriers.Inclusivity can be seen in everyday situations.

- In a classroom, it means ensuring equal participation, preventing bullying, and supporting all students, including girls and children with disabilities.
- In a community, it means making sure that public facilities such as drinking water points, toilets, and health services are accessible and safe for everyone.
- In public life, it means ensuring that people can speak, work, and take part in discussions without fear or humiliation.

Inclusivity is closely connected with equality of status and opportunity. It also matches national education goals that emphasise removing barriers created by social and economic disadvantage.

Sustainability

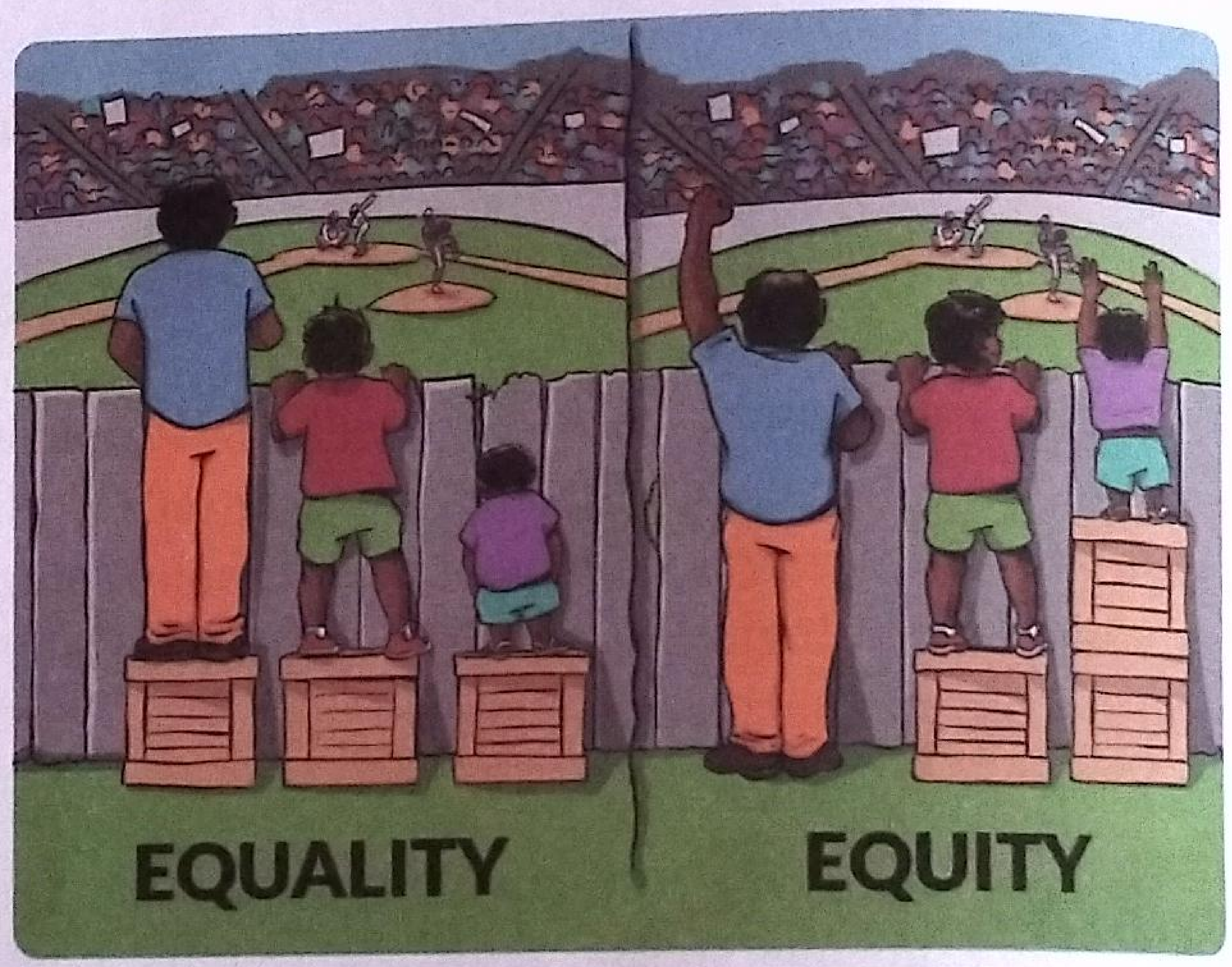
It means using resources wisely so that both present and future generations can meet their needs. It requires balance between development and protection of nature. This includes careful use of land, water, forests, minerals, and energy, as well as reducing pollution and waste. Sustainability becomes clearer when we connect environment with livelihoods and well-being.

- Cutting forests may create land for construction, but it can also lead to soil erosion, reduced water availability, and loss of biodiversity.
- Industrial growth may increase production and employment, but it can also pollute air and rivers, harming health and agriculture.
- Overuse of groundwater may support farming for a period, but it can cause long-term water scarcity.

A sustainable approach asks long-term questions. Who benefits now and who will bear the costs later? How can development be planned so that nature is protected and livelihoods remain secure. This value is also reflected in global goals that link human well-being with protecting the planet.

Equity

It means fairness in opportunities and outcomes. It recognises that people do not start from the same position. Some face disadvantages because of poverty, discrimination, disability, remoteness, or lack of access to services. Equity requires additional support where it is needed so that everyone has a genuine chance to study, stay healthy, and live with dignity.



Equity can be seen in many public decisions.

- Scholarships, free textbooks, or meal programmes that support children from low-income families.
- Ramps, assistive devices, and supportive teaching methods for children with disabilities.
- Stronger schools and health facilities in remote areas where services are limited.
- Targeted support for communities that have faced long term exclusion.

Equity connects strongly with the constitutional promise of justice and equality of opportunity, and it is also emphasised in education policy aims to ensure quality education for all regardless of background.

Engage and Reflect

What is one situation in school where treating everyone the same may be unfair, and what equity based support would help ensure participation and dignity for all?

Why these values matter

These values matter because living together requires understanding and responsibility. They help us examine real problems such as discrimination, unequal access to services, environmental damage, and poverty with sensitivity as well as clear reasoning. They also guide us towards decisions that are fair, inclusive, and sustainable, in line with constitutional ideals.

KEY LEARNINGS

- Social Science develops values alongside knowledge, linked to constitutional ideals such as justice, liberty, equality, and fraternity.
- Guiding values shape how we respond to difference, how we plan development, and how we judge fairness in public decisions.
- Diversity, inclusivity, sustainability, and equity help us examine social problems with sensitivity and clear reasoning.
- These values support responsible citizenship and encourage actions that protect dignity and promote social harmony.

UNDERSTANDING SOCIAL SCIENCE FROM AN INDIAN PERSPECTIVE

Social Science studies people and society, but society does not look the same everywhere. The questions a country asks, the problems it faces, and the solutions it chooses are shaped by its geography, history, economy, and systems of governance. This is why perspective matters. When we study Social Science from an Indian perspective, we try to understand India as it is, with its unique experiences and realities.

India is often described as plural and diverse, but diversity is not only a description of culture. It also shapes questions of language policy, access to public services, employment, and representation. In many places, people of different communities live side by side and share common facilities. In other places, differences can become reasons for prejudice and exclusion. A grounded understanding of India therefore involves recognising diversity while also examining how equality and dignity can be protected in daily life and in public systems.

Indian secularism is often discussed as distinctive because it focuses on protecting religious freedom while ensuring that the state treats all faiths fairly in a diverse democracy. This becomes important when we examine questions such as minority rights, public order, and equality before the law.

The Constitution as a guiding framework for public life

India's Constitution is central to understanding public life because it defines the ideals of justice, liberty, equality, and fraternity and sets out how institutions should function in a democracy. These values are not only for courts or parliament. They guide how we think about discrimination, unequal access to resources, and the responsibilities of government.

An Indian perspective also stresses scientific temper and the spirit of inquiry when we examine social issues. This means we should question rumours, stereotypes, and single-story explanations, and instead look for evidence and multiple causes. The Fundamental Duties include developing scientific temper, humanism, and the spirit of inquiry and reform, which supports this approach.

PREAMBLE

WE, THE PEOPLE OF INDIA,
having solemnly resolved to constitute India into a
SOVEREIGN SOCIALIST
SECULAR DEMOCRATIC REPUBLIC
and to secure to all its citizens :
JUSTICE, social, economic and political;
LIBERTY of thought, expression,
belief, faith and worship;
EQUALITY of status and of opportunity;
and to promote among them all
FRATERNITY assuring the dignity of the
individual and the unity and
integrity of the Nation;
IN OUR CONSTITUENT ASSEMBLY
this twenty-sixth day of November, 1949, do
HEREBY ADOPT, ENACT AND GIVE TO
OURSELVES THIS CONSTITUTION.

The past and the making of modern India

To understand India today, we need to understand how the past shaped present institutions and identities. Colonial rule influenced land revenue systems, education, transport, industries, and patterns of inequality. The freedom struggle shaped ideas of rights, justice, and citizenship and helped create a commitment to democratic governance. This historical understanding helps us see that present day debates and laws about equality, development, and national integration have deep roots, and cannot be understood only by looking at current events.

Governance from the village to the nation

India is a constitutional democracy with several levels of government. Understanding governance in India means understanding how decisions are made and implemented at different levels and how people participate as citizens.

Local self-government is especially important because it brings decision making closer to people's daily needs such as drinking water, sanitation, local roads, and village or ward planning. The 73rd Constitutional Amendment Act strengthened Panchayati Raj Institutions and is often discussed as a major step towards decentralisation and wider participation, including provisions that support representation of groups that were historically excluded.

This perspective helps us see democracy as more than elections. It is also about participation, accountability, and the everyday work of public institutions.

Environment and Livelihoods

Nature shapes livelihoods in powerful ways in India. Monsoons influence agriculture, rivers support irrigation and transport, and forests support both biodiversity and local economies. Environmental issues here often involve questions of survival and justice.

For instance, deforestation, water scarcity, floods, and pollution affect communities differently. Those with fewer resources may live in more vulnerable locations and may have fewer alternatives when crops fail or when water becomes unsafe. Understanding such issues requires linking environment with work, poverty, public policy, and long term planning, which supports sustainability as a guiding value.

Economic life and Development

Economic life shapes our daily choices because livelihoods, inequality, and development affect what we can afford and what opportunities we can access. Work in India ranges from agriculture and fishing to crafts, factories, construction, transport, retail, and services, with many people depending on seasonal or informal jobs and uncertain incomes.

Development can improve roads, electricity, digital access, healthcare, and employment, but its benefits are not shared equally across regions and social groups. An Indian perspective therefore asks who gains, who remains excluded, and how prices, wages, and public services influence mobility. Migration for work also shows these links, as it can raise incomes while putting pressure on housing, water, transport, and public services.

Expressway: A sign of economic development

An Indian perspective encourages us to connect disciplines rather than keeping them separate. A single issue such as migration, drought, unemployment, or urban overcrowding involves geography, history, economics, and political institutions at the same time. It also encourages us to judge choices using constitutional values, respect for diversity, inclusivity, sustainability, and equity.

In this way, the subject becomes a tool for understanding our own lives and our country, and for developing the habit of thinking carefully, fairly, and responsibly about society and public decisions.

KEY LEARNINGS

- Social questions and solutions vary across countries, so studying Social Science needs awareness of perspective and context.
- India's diversity influences language, representation, access to services, and the need to protect equality and dignity.
- The Constitution guides public life, institutions, rights, and responsibilities, and supports scientific temper and inquiry.
- Understanding India involves linking environment, livelihoods, governance, and development, and asking who benefits and who is excluded.

GLOSSARY

Diversity	Diversity is the presence and respectful recognition of differences among people, including language, religion, region, and culture.
Inclusivity	Inclusivity is the practice of ensuring that everyone feels respected and can participate fully by removing barriers and preventing exclusion.
Sustainability	Sustainability is the responsible use of resources so that present needs are met without harming the ability of future generations to meet theirs.
Equity	Fairness in opportunities and outcomes, which may require additional support for those facing disadvantage.
Decentralisation	Sharing of decision making power with local bodies so that governance is closer to people's daily needs.
Prejudice	An unfair judgement about a person or group formed without sufficient knowledge or evidence.
Migration	The movement of people from one place to another, often for work, which affects society, services, and the economy.

Exercises

A. Multiple choice questions (MCQs).

1. Social Science is best described as the study of
   (a) only past events and rulers (b) human society, relationships, and institutions
   (c) only natural resources and landforms (d) only markets and prices
2. The discipline that studies the Earth as the home of human beings is
   (a) History (b) Geography
   (c) Economics (d) Political Science
3. Which of the following best shows the overlap of disciplines in Social Science?
   (a) A historical event has no effect on the economy
   (b) A climate event can affect livelihoods and government planning
   (c) Geography never affects politics
   (d) Economics cannot be connected to society
4. A key purpose of studying Social Science is to
   (a) avoid questioning and accept all claims (b) develop informed, responsible citizenship
   (c) learn only dates and definitions (d) study society without values

5. Which of the following statement(s) are true with respect to the core ideas of Social Science?
   I. Social Science studies society through evidence, reasoning, and organised inquiry.
   II. Social Science focuses only on individual behaviour and ignores institutions.
   III. Geography, History, Political Science, and Economics often overlap in real life issues.
   IV. Sustainability encourages decisions that consider long term impact and future generations.

   Choose the correct option:
   (a) I and II
   (b) II and III
   (c) I, III and IV
   (d) I and IV

B. Fill in the blanks.

1. History helps us understand the __________ and how it shapes the present.
2. The Indian Constitution expresses ideals such as justice, liberty, equality, and __________.
3. __________ focuses on meeting present needs without harming future generations.
4. The organised structures such as schools, courts, and governments are called __________.

C. Match the following items given in column A with those in column B.

Column A		Column B
1.	Geography	A. Study of governance, rights, duties, and institutions
2.	History	B. Study of production, distribution, and consumption under scarcity
3.	Political Science	C. Study of the Earth, environment, and human settlement patterns
4.	Economics	D. Study of the past and its connection to the present

D. Very short answer type questions.

1. Name any one institution found in society.
2. Which discipline studies maps and spatial patterns?
3. Define diversity.
4. Name any two ideaes mentioned in the Preamble to the Constitution of India.
5. What is equality?

E. Short answer type questions.

1. Explain how Social Science connects daily life with classroom learning.
2. How does History help in understanding present day issues and identities?
3. Differentiate between diversity and inclusivity with one example each.
4. Explain how sustainability is linked to both development and environment.
5. Give two examples to show how real life problems require more than one Social Science discipline.

F. Long answer type questions.

1. Discuss the meaning of society and explain how relationships and institutions together shape social life.
2. Describe the relevance of Social Science in understanding social issues such as inequality, exclusion, and discrimination, using suitable examples.
3. From an Indian perspective, explain how Social Science helps us understand diversity, constitutional ideals, and democratic governance.
4. Explain the scope of Social Science by describing the roles of Geography, History, Political Science, and Economics, and explain how these disciplines connect & overlap in real-life situations.

G. Assertion-Reason questions.

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)

(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(c) (A) is correct but (R) is wrong

(d) (A) is wrong but (R) is correct

1. **Assertion (A):** Diversity refers to the presence of different cultures, languages, and beliefs in a society.
   Reason (R): Diversity creates unity by ensuring that everyone shares the same beliefs and practices.
2. **Assertion (A):** Development is not just about increasing income but improving the quality of life.
   Reason (R): Economic growth is the one of the measure of development used globally by Social Scientists.
3. **Assertion (A):** The study of History is important because it helps us understand how the present society was shaped.
   Reason (R): History only deals with past events and has no relation to understanding current social structures.

H. Case-based questions.

Read the given text and answer the following questions

The State of India's Environment in Figures 2025 report reveals alarming trends across multiple indicators, showing how environmental challenges are affecting public health, economic growth, and social stability. The report highlights a 25% increase in climate-induced displacement, with floods and droughts being the major contributors. These extreme events have affected more than 5.4 million people, with Assam being one of the hardest-hit states. Toxic pollutants in rivers have been found to exceed permissible limits, while groundwater is being excessively drained in several regions, further compromising local water availability. Despite the progress in certain states, inequality in access to public services remains widespread, and the need for evidence-based policies becomes more urgent.

1. How do the findings in this report illustrate the connection between environmental challenges and social inequality?
2. In what way do extreme weather events like floods affect society and development in India?
3. How can Social Science principles, such as sustainability and governance, help to address the environmental issues raised in the report?

AI-Buddy

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2

Landforms: Earth's Living Canvas

KEY CONCEPTS

- Plate Tectonics
- Interior of the Earth
- Role of weathering and erosion, agents of gradation—river, waves and currents, wind, glaciers, and underground water
- Landforms and disasters: earthquakes, landslides, avalanches, Glacial Lake Outburst Flood (GLOF) and duststorms

The Earth is a dynamic planet, constantly shaped by forces both from within and on its surface. Understanding the theory of plate tectonics provides a foundation for exploring how the Earth's lithosphere is divided into large, moving plates whose interactions cause earthquakes, volcanic activity, and the formation of mountains and ocean basins. Beneath the surface, the interior of the Earth—comprising the crust, mantle, outer core, and inner core—plays a crucial role in driving these tectonic movements through processes like mantle convection.

On the Earth's surface, external forces continuously reshape the landscape. Weathering breaks down rocks into smaller particles, while erosion and agents of gradation such as rivers, waves, and ocean currents, wind, glaciers, and underground water transport these materials, forming diverse landforms. Rivers carve valleys, glaciers sculpt mountains, and wind shapes deserts, illustrating the intricate relationship between these natural forces and the landforms they create.

The interplay of these internal and external processes also gives rise to natural disasters. Earthquakes, landslides, avalanches, glacial lake outburst floods, and dust-storms highlight the Earth's dynamic and sometimes destructive nature. Studying these phenomena not only helps us understand the forces that shape our planet but also equips us to mitigate their impact on human societies.

PLATE TECTONICS

Plate tectonics is one of the most important scientific theories in Earth science, explaining how the Earth's surface is constantly changing over time. It describes the movement of large pieces of the Earth's outer layer, known as tectonic plates, which moves horizontally over the asthenosphere. These moving plates interact with one another, causing natural phenomena such as earthquakes, volcanic eruptions, mountain formation, and the creation of ocean basins. The theory of plate tectonics combines earlier ideas like continental drift and seafloor spreading to provide a clear understanding of how the Earth's crust has evolved for millions of years. Through this theory, scientists can better understand the dynamic nature of our planet and the forces that continue to shape it.

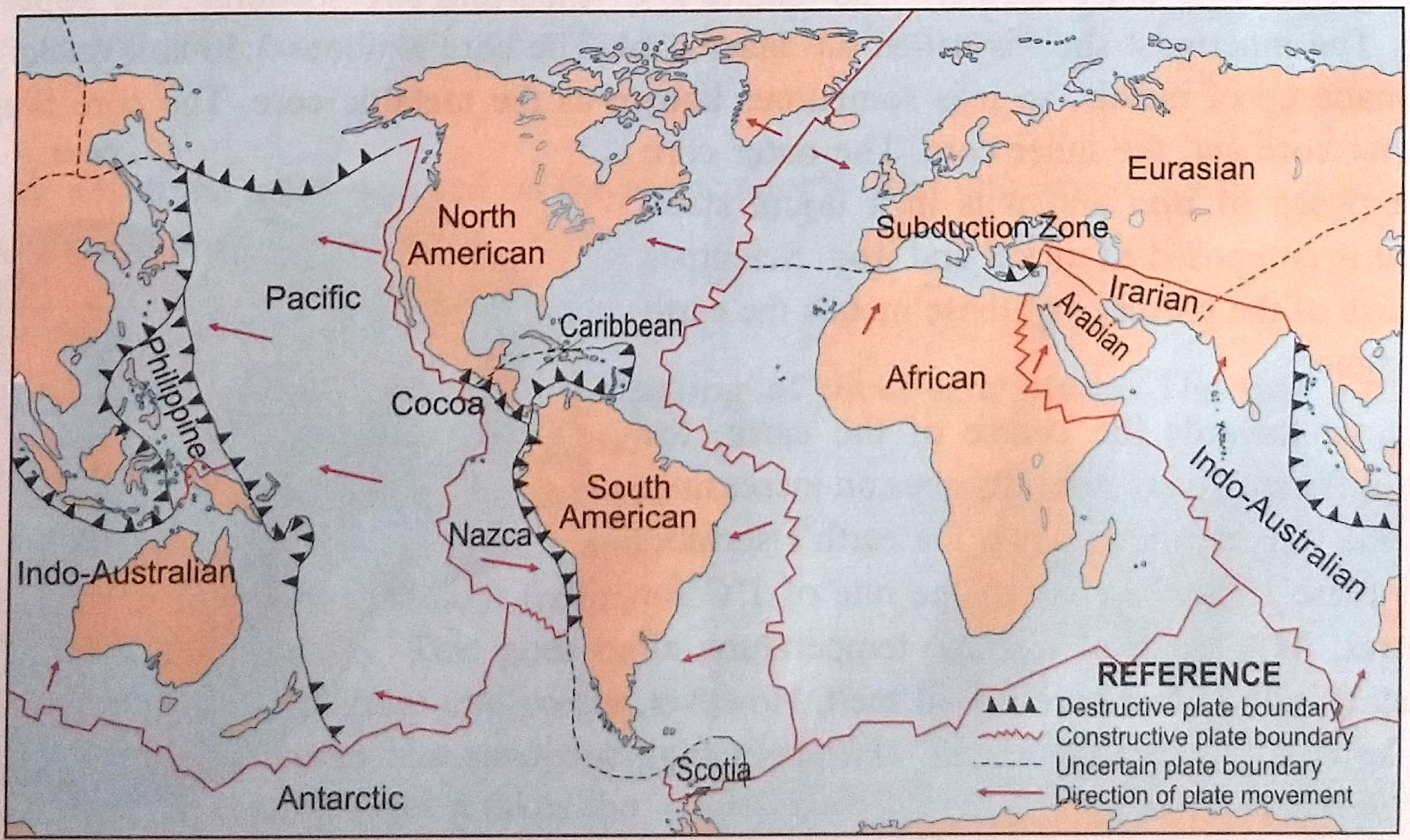
Theory of Plate Tectonics

The theory of plate tectonics explains that the Earth's outer layer, called the lithosphere, is divided into large and small plates that move over the semi-fluid layer beneath them, known as the asthenosphere. This theory developed from earlier ideas and includes several related concepts. One of the earliest ideas is the Continental Drift Theory, proposed by Alfred Wegener in 1912. He suggested that all continents were once joined together in a single landmass called Pangaea and later drifted apart. Although he provided evidence such as matching coastlines, fossils, and rock formations, he could not explain the mechanism behind the movement.

Later, the Seafloor Spreading Theory, proposed by Harry Hess and Robert S. Dietz in the 1950s, provided the missing mechanism. According to this theory, new oceanic crust is formed at mid-ocean ridges due to volcanic activity. As magma rises and solidifies, it pushes the older crust away from the ridge, causing the seafloor to spread. This explained how continents could move over time and was supported by evidence such as magnetic striping on the ocean floor.

Another important concept is the theory of Convection Currents in the mantle. Scientists believe that heat from the Earth's core creates convection currents in the mantle, which drive the movement of tectonic plates. As hot material rises and cooler material sinks, it creates a circular motion that pushes and pulls the plates above it.

Finally, the modern Plate Tectonic Theory combines all these ideas. It explains the movement of both continental and oceanic plates and describes different types of plate boundaries: divergent (plates move apart), convergent (plates collide), and transform (plates slide past each other). This comprehensive theory helps explain earthquakes, volcanic activity, mountain formation, and ocean trench formation, making it one of the most important theories in geology.


Eurasian
North American
Subduction Zone
Pacific
Irarian
Arabian
Caribbean
African
Cocoa
Philippine
Indo-Australian
South American
Nazca
Indo-Australian
REFERENCE
Destructive plate boundary
Constructive plate boundary
Uncertain plate boundary
Direction of plate movement
Scotia
Antarctic

Distribution of major Tectonics Plates

Engage and Reflect

1. The theory of plate tectonics was proposed by:
   (a) Isaac Newton (b) Alfred Wegener (c) Charles Darwin (d) Galileo Galilei
2. The movement of plates is caused by:
   (a) Gravity (b) Ocean waves (c) Convection currents (d) Wind

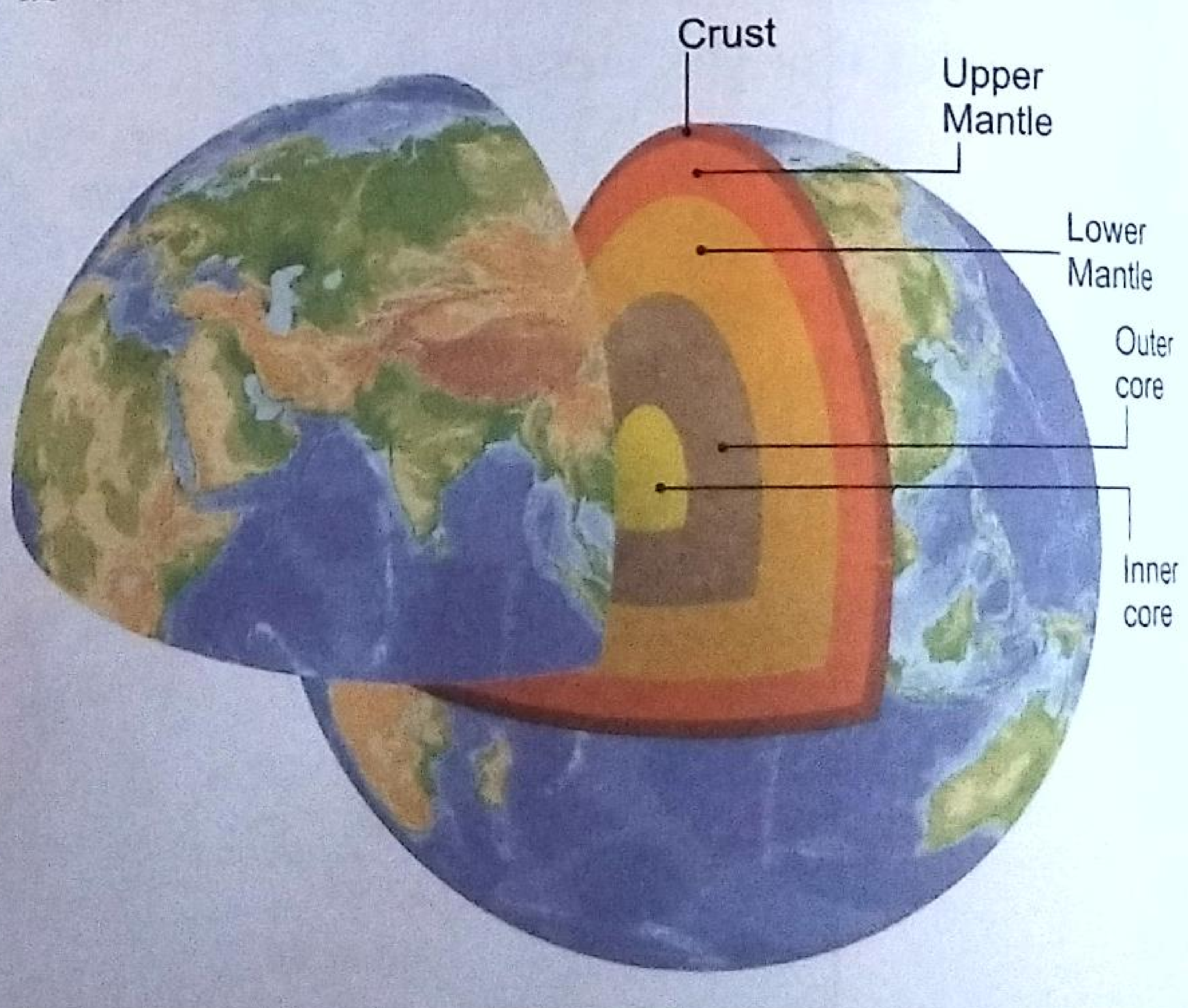
KEY LEARNINGS

- Plate tectonics is one of the most important scientific theories in Earth science, explaining how the Earth's surface is constantly changing over time.
- Alfred Wegener suggested that all continents were once joined together in a single landmass called Pangaea and later drifted apart.
- According to Seafloor Spreading Theory, new oceanic crust is formed at mid-ocean ridges due to volcanic activity.
- Plate tectonics theory helps explain earthquakes, volcanic activity, mountain formation, and ocean trench formation, making it one of the most important theories in geology.

INTERIOR OF THE EARTH

Our earth has a layered structure comprising the Crust, Mantle and Core. The solid outer covering of the earth which envelopes its interior portion is called the crust. Its average thickness varies from 5 to 40 kilometres. However, the thickness of this layer is not uniform everywhere. It is thicker under the continents and thinner under the oceans. The crust is made up of a great variety of rocks. It is the most important shell of the earth as it sustains life. It includes all the continents and islands, etc. It is also under the seas. It is always undergoing changes. In between the crust and the mantle, there is the mantle or a thicker layer of rocks whose average thickness is about 2,900 km. Its density increases with the increase in its depth. The crust is separated from the mantle by a boundary, known as Mohorovicio Discontinuity (named after the geologist Andrija Mohorovicic who discovered it). The mantle is divided into two sections : the upper mantle and the lower mantle. The innermost shell is called the inner core. The core is about 3,500km thick. It is the densest layer and is made up of metals, so it is sometimes known as the metallic core. The core is divided into two parts : the outer core and the inner core. The outer core is mainly composed of iron and it is in a liquid state. The inner core is composed of nickel and iron. Scientists feel that because of the presence of these metals the earth acts like a magnet.

As we move towards the centre of the earth, the density of the different layers or shells goes on increasing. Likewise, if one were to move down the earth's surface, there will be a rise in temperature at the rate of 1°C for every 32 metres. As a result of extreme temperature, all rocks and metals in the inner core would melt. However, it behaves like a solid because of the extremely high pressure of the outer shell.



Interior of the Earth

Engage and Reflect

1. The innermost layer of the Earth is:
   (a) Mantle (b) Crust (c) Core (d) Lithosphere
2. The mantle lies between:
   (a) Crust and Core (b) Core and Crust
   (c) Lithosphere and Core (d) Core and Atmosphere

KEY LEARNINGS

- Our earth has a layered structure comprising Crust, Mantle and Core.
- In between the outer crust and the inner core, there is the mantle or a thicker layer of rocks whose average thickness is about 2,900 km.
- The mantle is divided into two sections : the upper mantle and the lower mantle.
- The outer core is mainly composed of iron and it is in a liquid state.
- As we move towards the centre of the earth, the density of the different layers or shells goes on increasing.

ROLE OF WEATHERING AND EROSION; AGENTS OF GRADATION–RIVER, WAVES AND CURRENTS, WIND, GLACIERS, AND UNDERGROUND WATER

Various processes go on changing the surface of the earth constantly. Some of these processes like volcanic activity and earthquakes work beneath the earth's crust, while there are some other processes like weathering, erosion and mass movements etc. which are responsible for bringing about changes on the surface of the earth. Humans also play an important part in bringing about certain changes on the surface of the earth. Here, we shall deal with the external processes only, which play a vital role in modifying the surface of the earth and help in the formation of soil.

External Processes

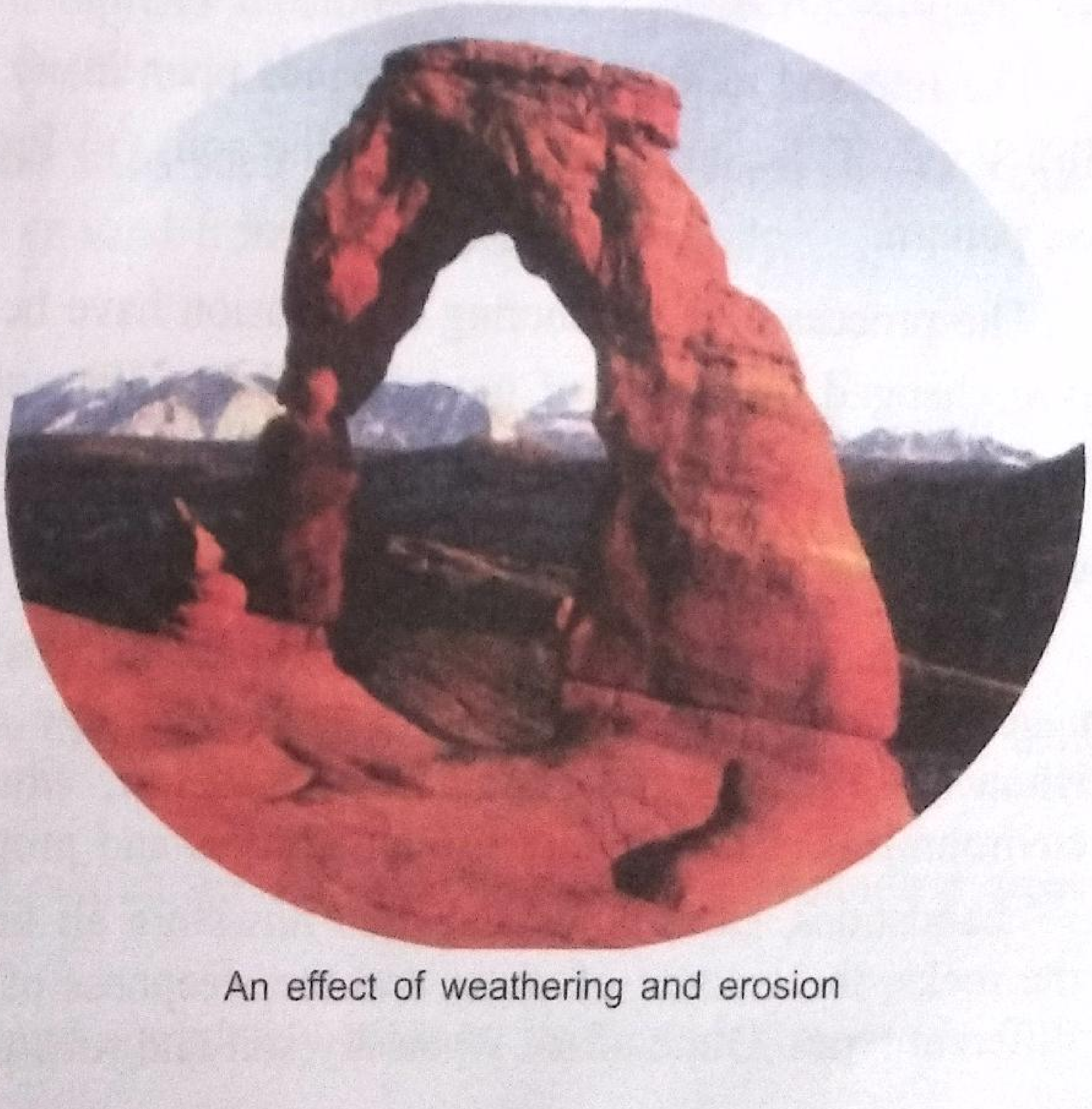
Natural processes which take place gradually on the surface of the earth are called external processes. Weathering, erosion and mass movements are some such external processes.

Weathering

The process by which the rocks exposed on the surface get broken into smaller pieces in situ (in the same place) is known as weathering.

Factors Influencing the Weathering Process

There are many factors which influence the breaking of rocks into pieces. The first is the change in temperature and pressure. The continuous heating and cooling of rocks makes them break apart. The second is the action of water. Water collects in cracks and pores of rocks. When the temperature falls, it freezes and expands. This widens the cracks. This goes on for many years till the rocks disintegrate into pieces. The air loaded with sand also works like sandpaper striking against the rock; especially when it takes the shape of a storm, it abrades rock surfaces and as a consequence the rock gets broken into small pieces. Sometimes seeds get deposited in small holes in rocks by, animals, wind or water. The roots of plants, when they go deep into the cracks of the rocks, also break them into pieces. Lastly, animals and humans also break rocks into pieces by their mechanical actions.



An effect of weathering and erosion

Major types of Weathering

There are mainly three types of weathering — physical weathering, chemical weathering and biological weathering.

1. **Physical Weathering** — When disintegration of rocks takes place without any change in their chemical composition, it is called **physical weathering.** It takes place in many ways. Sometimes it is the change in temperature which leads to breaking up of rocks. The outer layers of the rocks expand when they are heated by the sun during the day-time. At night the temperature falls quickly and the outer layers of the rocks contract. As a result, the outer parts of rocks are loosened and they break away apart from the main rock. This peeling of the outer layers of the rocks is called exfoliation which is quite common in granitic rocks.

Sometimes in cold lands, water in the cracks of rocks freezes and expands. Contraction takes place when the ice melts. As described above, this alternative expansion and contraction leads to the development of cracks in the rocks. If water enters these cracks, it may freeze into ice and exert great force. As a result the cracks are widened and ultimately the rocks break into pieces. This is called frost-action.

2. **Chemical Weathering** — Due to chemical reaction of water or air certain portions of rocks are dissolved producing interesting features like cavities, sinkholes and caverns etc. It is called chemical weathering. Some of the soluble minerals like rock-salt, limestone, sandstone are dissolved into water and they are removed from their original place. The gaps that develop, make the rocks tumble and disintegrate because of their own heavy weight.

3. **Biological Weathering** — Animals and plants also play an important role in the breaking up of rocks. Because of pressure and heat they decay and loosen the rocks. Plants grow in rocks. Their roots cause cracks in the rocks and break them. The roots of the plants also produce acidic juices which cut into the rock-material and slowly break the rocks. Sometimes burrowing animals like rabbits and rats and even human beings also contribute to this process.

Erosion

The act of carrying away the weathered particles from one place to the other is called **erosion.** Rivers, rainwater, glaciers, waves and winds carry away the weathered particles from place to place. Like weathering, erosion also takes place almost everywhere and all the times. Sometimes the process of erosion is slow while at other times it is more prominent.

The rate and ratio of erosion depends upon many factors such as (i) Rainfall at a place; (ii) Temperature; (iii) Slope of the land; (iv) Type of the soil; (v) Presence of vegetation cover and (vi) Change in the land use pattern.

The processes of weathering and erosion have been continuing over millions and millions of years. They have changed the shape of mountains, hills, plateaus and plains. It is said that where the Great Himalayas now stand there was once a deep sea called 'Tethys'.

Mass Movements

Mass movements also bring changes in the earth's surface. They are caused by gravity which pulls all materials downwards. Such movements are quite common in mountainous regions such as Uttarakhand, Himachal Pradesh and Jammu and Kashmir, where loose rock masses slide down the slope, causing environmental hazards, loss to human lives and property alike.

Landslides, earth flows and mud flows are all linked with mass movements. Depending upon the size of the rocks, the amount of water and the steepness of the slopes, the mass movements have been divided into different types. Quite often, when dry soil and rock pieces move down a steep slope, it is known as **landslide.**

When, on the other hand, rock materials like clay and silt, saturated with water, move down a gentle slope, it is called an **earth flow.**

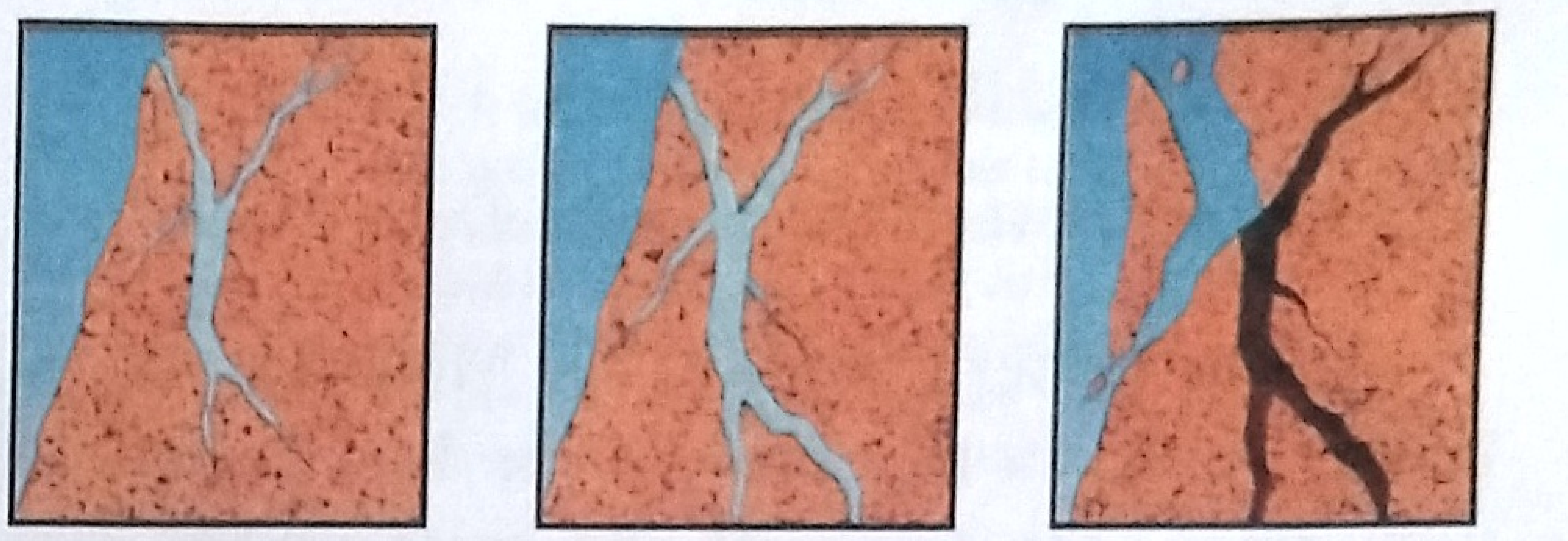
When water-saturated rock debris move down the channels on steep hill sides, it is called a **mud-flow.**

Agents of Denudation

Now that we have learnt about the different processes which bring about changes on the surface of the earth, let us now learn about the different agents of denudation which bring about changes on the face of the land.

Denudation literally means making nude or bare. The different agents of denudation are the following :

1. Rivers
2. Rain water
3. Ice or Glaciers
4. Sea waves
5. Winds.



The process of freeze-thaw action begins when rain seeps into a small crack in a rock.

The water freezes, expands and widens the crack. When the ice thaws, more water can seep in.

As the temperature rises and falls, the crack gradually grows until the rock breaks apart.

Water as an agent of degradation

1. Rivers — On their normal course from mountains to the sea, the rivers transport huge quantities of broken rocks to the lowlands. They also erode land into gorges and valleys, etc.

2. Rainwater — When rain falls, some of the water seeps underground through fissures or pores in the rocks. Man has been using the underground water from time immemorial by digging wells. In the hilly areas this underground water may reappear as springs. In regions having soluble rocks like limestone or salt, the seepage of the underground water creates caves and other landscape features.

3. Ice or Glaciers — The moving mass of ice on the mountains is known as glaciers. When they melt away along their edges they give birth to rivers. The movement of the glaciers erodes the V-shaped river valley into the U-shaped valley.

4. Seawaves — The action of seawaves causes erosion of the coast. They also deposit material along the shore when they recede. Therefore, the work of waves comprises erosion, transportation and deposition. We shall read about the action of the waves in more detail in the next chapter.

5. Winds — Wind-action is most significant in desert areas such as thar desert in Rajasthan and Sahara in Africa where winds can remove dry particles of dust or sand from the surface very easily.

Role of Man in Changing the Land Surface

Besides the above forces, man also plays a vital role in changing the land surfaces. He is responsible for the degradation of land in a number of ways.

- By cutting the trees indiscriminately, he turns the land into wasteland. If there are no trees then there are no rains and if there are no rains, the land is automatically degraded.
- Indiscriminate building activities not only swallow the land but they also render the surrounding land degraded.
- The dirty and poisonous effluents from factories which go on collecting in the surrounding areas completely degrade lands and render them waste.
- Not only this, the dumping of city waste on any land completely leads to its degradation.

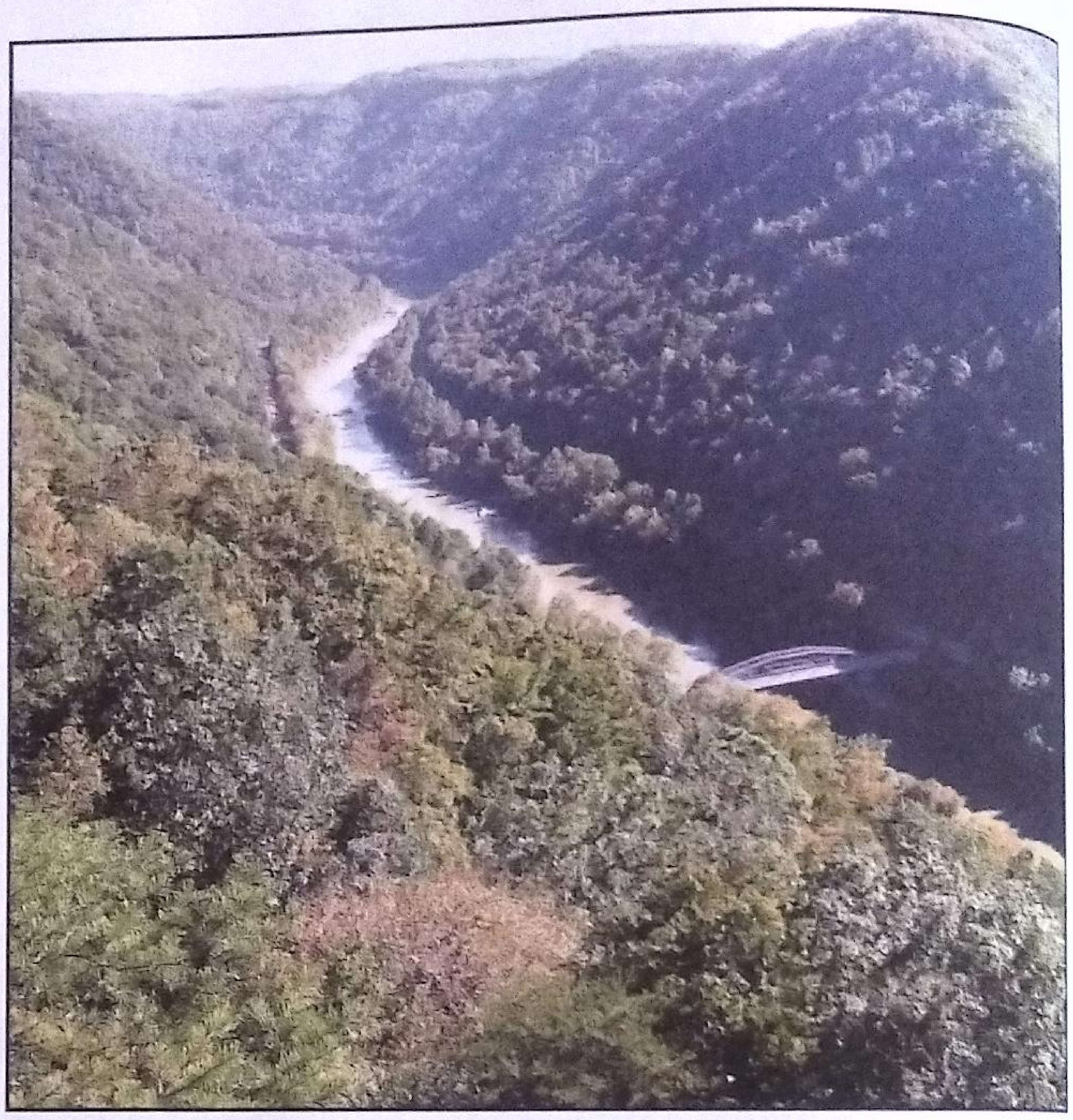
Work of the River as an Agent of Erosion and Deposition

In view of the change in the water supply and slope of land along the path of the river, the river course is usually divided into three stages which are known as :

(1) The Upper Course or the Mountain Stage.

(2) The Middle Course or the Plain Stage.

(3) The Lower Course or the Delta Stage.


A narrow valley with steep slopes — Gorge

(1) The Upper Course or the Mountain Stage— In this stage, as the slope of the land is generally very steep, the water of the river rushes down with a great speed. Consequently the river not only erodes its sides and bed but also carries stones and fragments of rocks with it. In this way the river is busy, in its upper course, in erosion and transportation. By eroding its sides and bed it develops gorges, V-shaped valleys, waterfalls and rapids, etc.

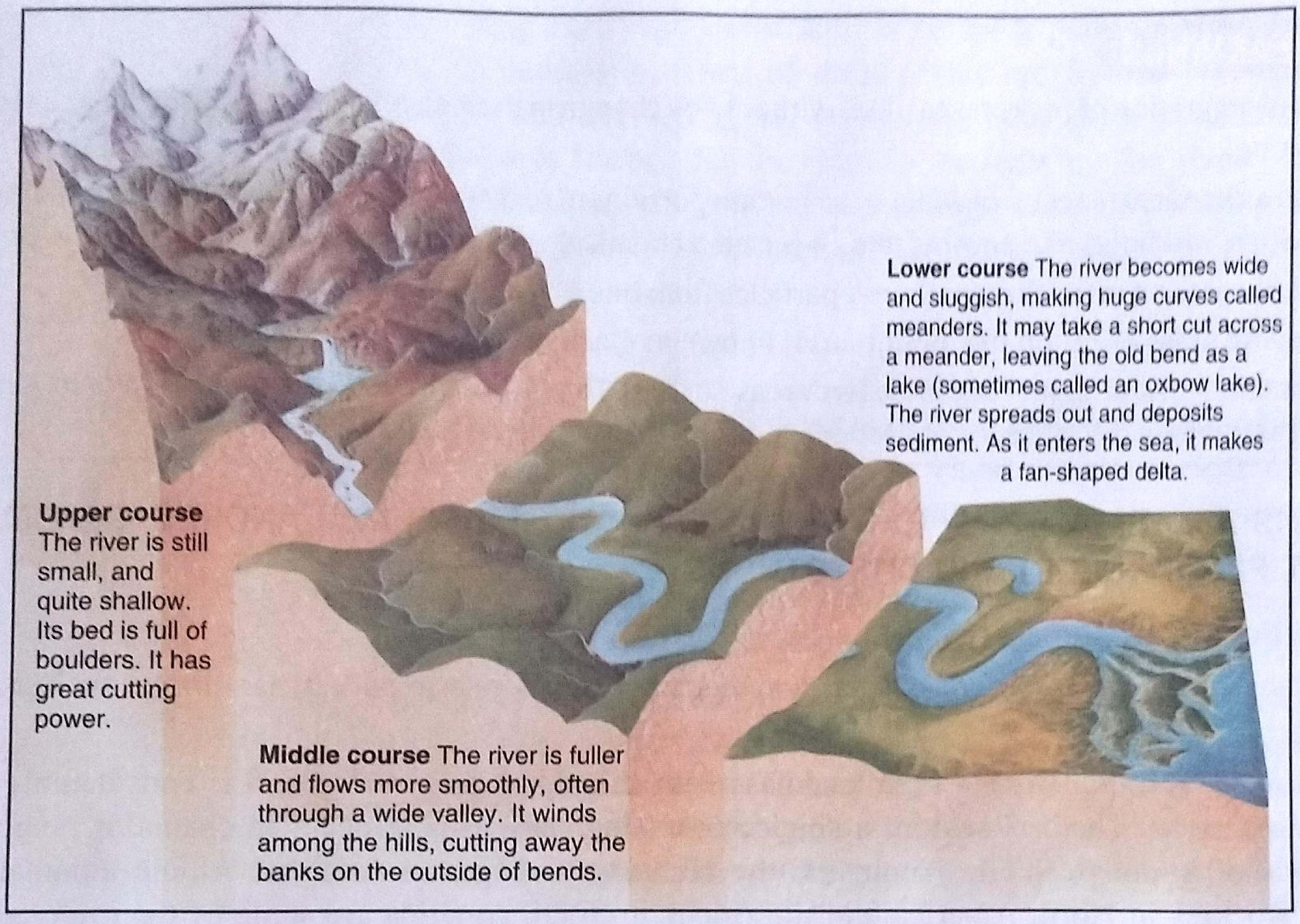
When the river flows through an area made up of hard rocks, it makes a narrow valley with steep walls. Such a narrow valley with steep walls is called a gorge.

(1) Sometimes a river flows through an area of soft rocks and heavy rainfall. In such a case the sides of the river are easily eroded, thereby making sufficiently widened valleys. Such valleys are called V-shaped valleys. At certain places the river makes waterfalls which in the modern times are harnessed for the generation of electricity. A waterfall is a sudden descent of water over a big vertical step formed in a river bed. The Niagara Falls in North America and Victoria Falls in Africa are well known the world over. But the highest waterfall is, however, the Angel Falls in Venezuela, which is about 980 metres high.

(2) Sometimes the bed of a river is both sloping and rocky with many up and down curves. Here the river jumps over and falls downwards continuously, thereby making many rapids. The current of the river water cannot easily cut down the hard valley bottom, otherwise rapids would have been converted into waterfalls.

In a waterfall, the top is rocky but under-layers are soft which the river can easily cut. But in case of rapids both the top and valley bottom are rocky, so the rapids cannot gain height or depth. There is no one deep fall as in the case of a waterfall. The water in a rapid jumps over and falls downwards continuously. A series of rapids, big or small, are called cascades. Naturally, in this stage the river is not at all useful for navigational purposes. The main work of the river during the upper stage is nothing but erosion and transportation.

(2) The Middle Course or the Plain Stage — In this stage the slope is not so steep. It becomes quite gradual, so the river slows down and becomes fit both for navigation and irrigation. The river, when it overflows its bank, deposits the alluvial sediments, which it brings from the mountains, on both the sides. Thus are formed the flood plains which are often level and very fertile. When the course of a river lies in the flat plain, irregularities of the ground force the river to swing from side to side, thereby making big loops. Such loops formed by the river in the flat plain are called **meanders**. As the river assumes a useful posture during this stage, many towns grow up near its banks.



Upper course The river is still small, and quite shallow. Its bed is full of boulders. It has great cutting power.

Middle course The river is fuller and flows more smoothly, often through a wide valley. It winds among the hills, cutting away the banks on the outside of bends.

Lower course The river becomes wide and sluggish, making huge curves called meanders. It may take a short cut across a meander, leaving the old bend as a lake (sometimes called an oxbow lake). The river spreads out and deposits sediment. As it enters the sea, it makes a fan-shaped delta.

The Course of a River from its Source in the Mountains to its Mouth at the Sea

(3) The Lower Course or the Delta Stage — This is the last stage of the river before it merges into the sea. Its speed now slows down and it becomes quite difficult for it to carry the sediments it had brought with it. So the deposition process begins with a rapid speed. The level of its bed rises and the river gets divided into many channels called distributaries before it falls into the sea. Thus are formed the deltas of the river which contain deposits of alluvium (or soil) and hence they are very fertile.

Comparison of Mountain Glaciers and Continental Glaciers

Sometimes glaciers are divided into two kinds–Mountain Glaciers and Continental Glaciers.

Mountain Glaciers — They move down from the mountain tops along the valleys. They move slowly as their movement is retarded by the valley floor. They melt away along their edges and thus give birth to rivers. The rivers Ganga and Yamuna also rise as a result of such a melting of the mountain glaciers. The movement of the mountain glaciers also erodes a V-shaped valley into a U-shaped valley.

Continental Glaciers — Glaciers which are comparatively bigger in size and slower in movement are called continental glaciers. They occupy large areas exceeding thousands of square kilometres. They are thick ice sheets covering the entire land surface. They generally occur in Polar Regions.

Engage and Reflect

1. Breaking of rocks in situ is called:
   (a) Erosion (b) Weathering (c) Deposition (d) Transportation
2. U-shaped valleys are formed by:
   (a) Rivers (b) Glaciers (c) Wind (d) Underground water
3. Sand dunes are formed by:
   (a) Rivers (b) Glaciers (c) Wind (d) Waves

KEY LEARNINGS

- When disintegration of rocks takes place without any change in their chemical composition, it is called physical weathering.
- When as a chemical reaction of water or air certain portions of rocks are dissolved producing interesting features like cavities, sinkholes and caverns, etc., it is called chemical weathering.
- The act of carrying away the weathered particles from one place to the other is called erosion.
- The moving mass of ice on the mountains is known as glaciers.
- Wind-action is most significant in desert areas such as Thar Desert in Rajasthan and Sahara in Africa where winds can remove dry particles of dust or sand from the surface very easily.

LANDFORMS AND DISASTERS: EARTHQUAKES, LANDSLIDES, AVALANCHES, GLACIAL LAKE OUTBURST FLOOD (GLOF) AND DUSTSTROMS

Major Landforms of the Earth

The surface of the earth is neither even nor regular. It gives rise to several landforms such as mountains, plateaus and plains, etc.

Mountains — A mountain is a high landmass with sharply sloping surfaces. It is considerably higher than the surrounding areas. There is seldom a single mountain. They usually occur in chains or ranges extending over hundreds of kilometres. The Pamir and the Himalayan ranges in Asia, the Alpine mountain ranges in Europe, the Rockies in North America and the Andes in South America are some of the important mountain ranges of the world.

Mountains differ in shapes and heights. Young mountains, like the Himalayas, are very high and have pointed peaks. The Alps, the Andes and the Rockies are also young mountains. Old mountains, like the Aravalli and the Appalachian, are low in height and have rounded tops. This is because of erosion by wind and water for thousands of years.

There are three types of mountains — Fold Mountains, Block Mountains and Volcanic Mountains.

Fold Mountains are created due to the internal movements in the earth. As a result of the cooling and contracting of the molten magma, the crust at several places becomes eroded and folds are made. The elevated parts become mountains i.e., the fold mountains, and the intervening depressions become valleys. The Himalayan Mountain in India, the Alps in Europe, the Appalachians in North America and Ural Mountains in Russia are some examples of the fold mountains.

Block Mountains are created when large masses of land are broken and displaced vertically. The Rhine valley and the Vosges mountain are example of such a system of the change of land- mass.

Volcanic Mountains are formed due to volcanic activity. Mt. Kilimanjaro in Africa and Mount Fujiyama in Japan are some examples of volcanic mountains.

Life in the mountain regions, because of hard and rocky terrain, is very hard. It is difficult to construct roads or lay railway lines in such areas. Moreover, climate in such areas is also very harsh. So, very few people reside in mountain regions.

Plateaus — A plateau is a broad and more or less level stretch of upland that rises sharply above the neighbouring lowland. It is also called a tableland. The surface of the plateau is not always smooth. It is generally rugged and rocky. The Deccan Plateau in India extends over thousands of kilometres. The Tibet Plateau is the highest in the world. It is, therefore, called 'the Roof of the World'. There are large plateaus in Africa, Australia, Asia, North America and South America. The plateau land is generally rich in mineral deposits. Like the mountain regions, life in the plateau regions is also very hard. Land is not smooth, so it hinders the laying of roads, railways and canals. As such, these areas are also not much populated.

Plains — A relatively flat and low-lying vast expanse of land is called a plain. While some plains are extremely level, others may be rolling or undulating. Most of these plains are formed by major rivers and their tributatries which have been bringing and depositing silt, stones and sand along their courses for ages together. The Great Northern Plain of India is formed by the deposits brought by the river Ganga and her tributaries. The Hwang-Ho Plain in China and the Nile Valley Plain in Egypt are also formed by the rivers. Of all the landforms, plains are most suitable for human habitation. The plains formed by river deposits are very fertile. That is why they are very thickly populated.

Disaster

Natural disasters are powerful events caused by natural processes of the Earth that can lead to widespread destruction, loss of life, and damage to the environment and property. These disasters occur due to various geological and climatic factors and often strike without warning. Events such as earthquakes, landslides, avalanches, glacial lake outburst floods (GLOFs), and dust storms are examples of natural hazards that significantly affect both human settlements and natural ecosystems. They may be triggered by tectonic movements, heavy rainfall, rapid snowmelt, climate change, or strong winds, depending on the type of disaster.

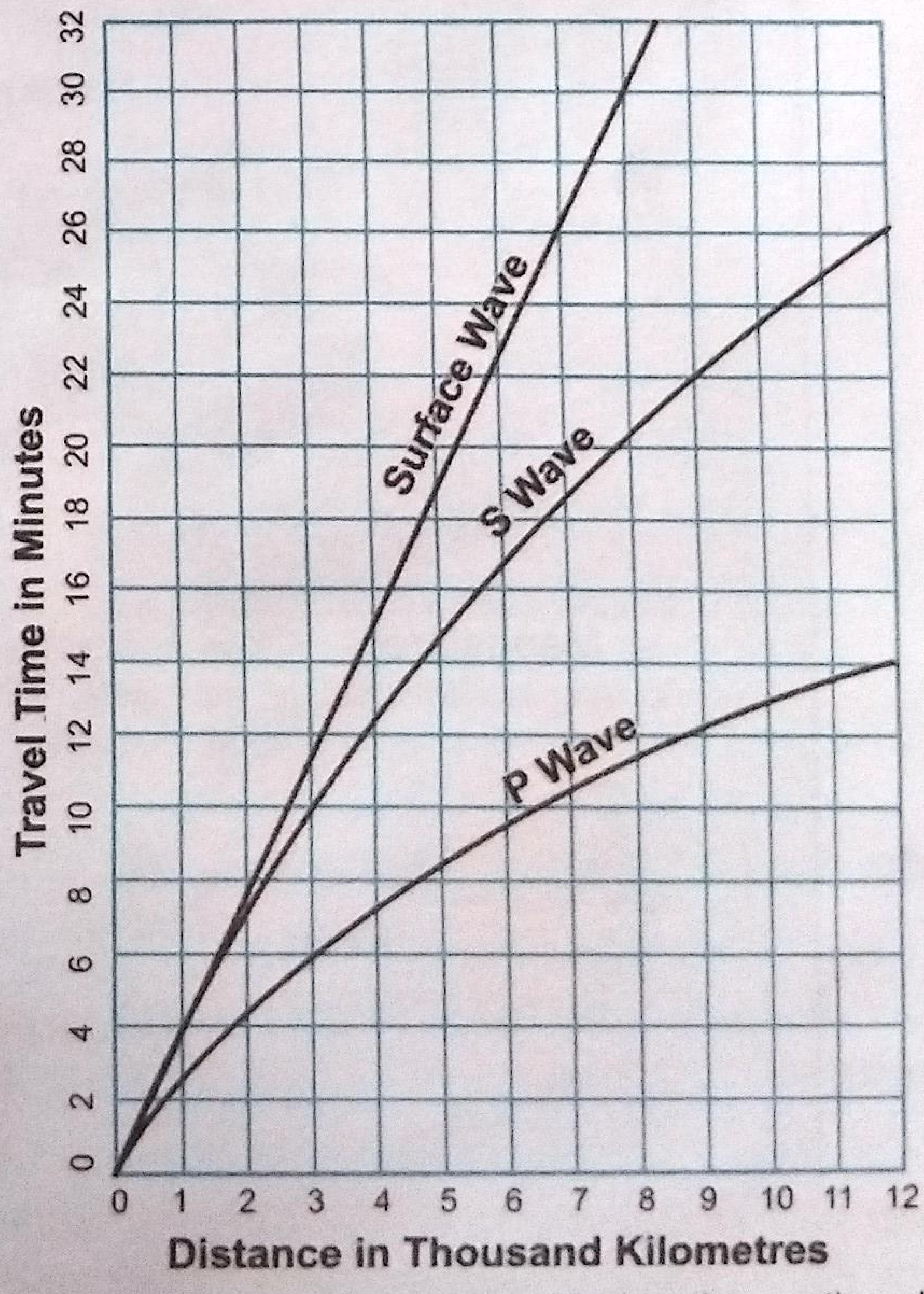
Earthquakes result from sudden movements of the Earth's tectonic plates, causing the ground to shake violently. Landslides and avalanches involve the rapid movement of soil, rocks, or snow down slopes, often triggered by rainfall, earthquakes, or temperature changes. Glacial lake outburst floods occur when water accumulated in glacial lakes is suddenly released due to the breaking of natural dams made of ice or moraines. **Dust storms**, on the other hand, are caused by strong winds lifting large amounts of dust and sand into the atmosphere, reducing visibility and affecting health and transportation.

Understanding these disasters is important for disaster preparedness, risk reduction, and effective management. By studying their causes, impacts, and preventive measures, communities can better protect lives and property while building resilience against future natural hazards.

Earthquakes

Both the earth's surface and interior, as already studied earlier, are unstable. A sudden shaking of earth is a result of this instability and sudden release of energy. An earthquake causes the trembling and thus anything that stands on ground — buildings, trees, poles, dams — also begin to shake and tremble, depending on the intensity of the earthquake.

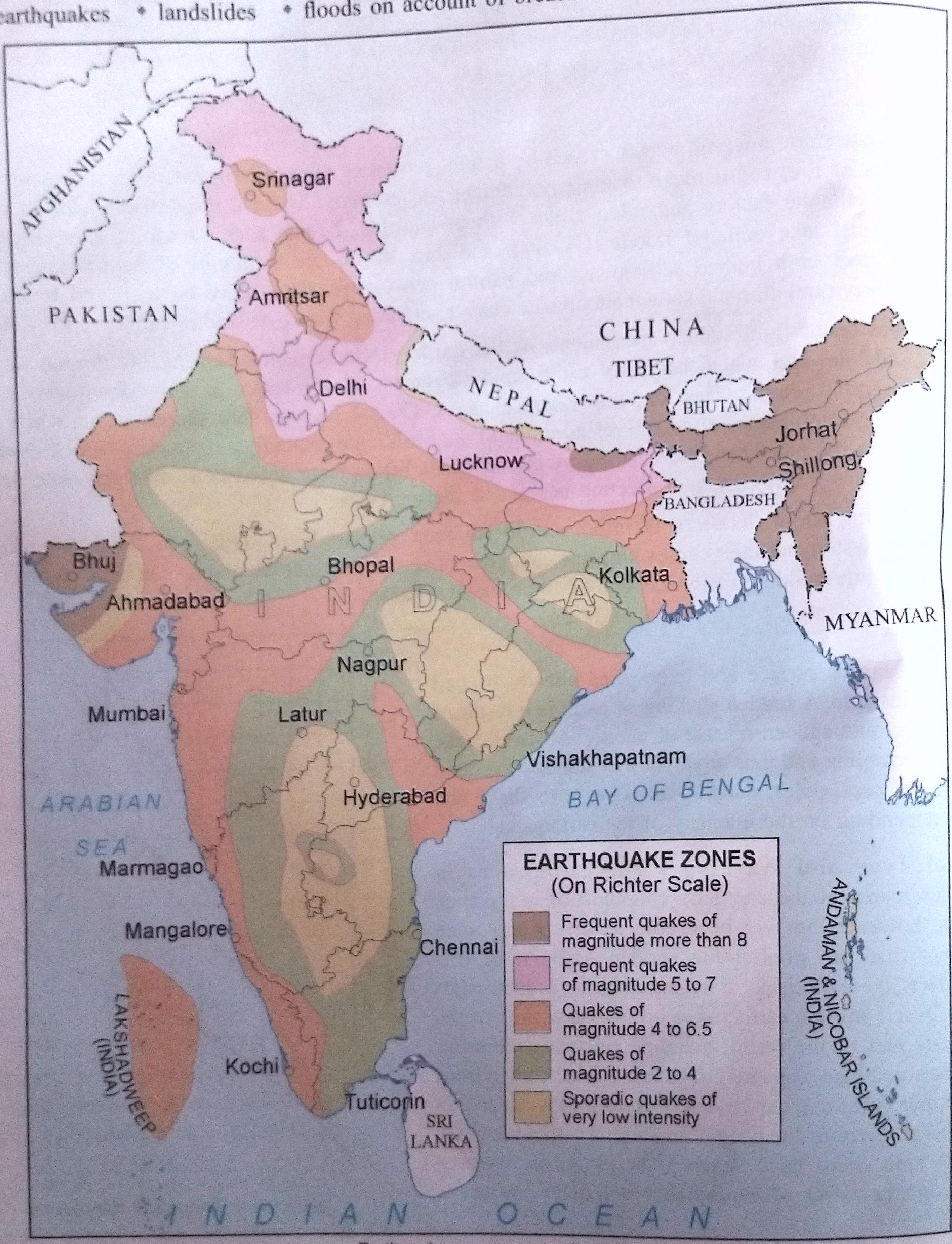
Onset Type and Warning : The earthquakes in themselves represent the energetic condition of our planet. Man has, however, not yet been able to invent any such instrument that can predict the sudden outburst of this energy. Thus the earthquake is regarded as a 'sudden-onset hazard'. Over 1 million earthquakes occur at any time of the year in any part of the world including oceans (underwater earthquakes generate tsunamis). Of these atleast four dozens are of serious types that can be described as highly hazardous to life and property of the people. In some western countries and USA loud sirens have begun to be played as warning systems against onset of earthquakes but only few prove correct.



Time distance graphs are used in locating earthquake epicenters and issuing warnings.

Vulnerability

- Earthquake prone zones are today well marked in maps all over the world. Settlements along the geological fault-lines are most vulnerable to :
  - earthquakes
  - landslides
  - floods on account of breach of river banks or dams.


AFGHANISTAN
PAKISTAN
CHINA
TIBET
NEPAL
BHUTAN
BANGLADESH
MYANMAR
Srinagar
Amritsar
Delhi
Lucknow
Jorhat
Shillong
Bhuj
Ahmadabad
Bhopal
Kolkata
I N D I A
Nagpur
Mumbai
Latur
Vishakhapatnam
Hyderabad
ARABIAN SEA
BAY OF BENGAL
Marmagao
Mangalore
Chennai
Kochi
Tuticorin
SRI LANKA
LAKSHADWEEP (INDIA)
ANDAMAN & NICOBAR ISLANDS (INDIA)
INDIAN OCEAN
EARTHQUAKE ZONES
(On Richter Scale)
Frequent quakes of magnitude more than 8
Frequent quakes of magnitude 5 to 7
Quakes of magnitude 4 to 6.5
Quakes of magnitude 2 to 4
Sporadic quakes of very low intensity

Earthquake prone zones of India

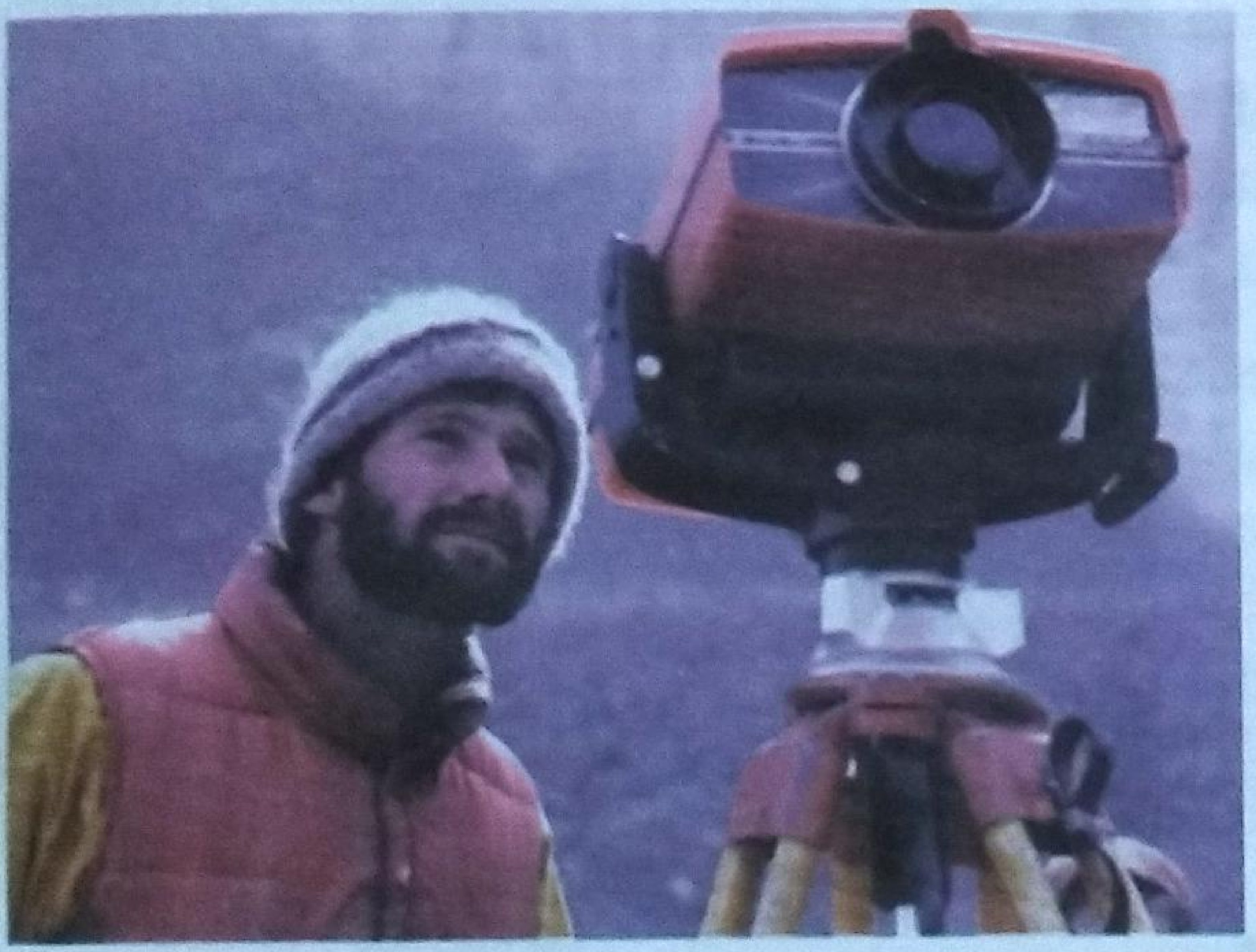
- Vulnerability depends on density of human settlements, soil and rock types (disintegrated rocks, sedimentary rock strata, alluvial and windblown soil are more vulnerable to risks). A U.S. Geological Survey publication has in recent years shown that Earthquake waves could shake a section of the crest 2000 metres thick.

  Some recent space probes like those of Saturn and Mars in 2004 are said to have provided new insights to scientists who are said to be close to determining the source of location and time of earthquakes. Radio stations, television centres and newspapers may soon begin to announce this information alongwith weather charts.

- Loosely built structures normally having no strength to withstand the shocks, wooden fixtures, heavy mantle and roots are vulnerable to risk.
- Geology of the area directly affects the intensity of the shock. Steepness of the slope makes an earthquake shock more vulnerable.

Typical Effects

- **Panic :** Vibratory waves accompanying the earthquake cause panic among animals and humans alike. More damage is done by the panic.
- **Physical damage :** This includes collapse of buildings, cracks in ground, roads, bridges, walls, water tanks, bunds, rivers and dams.
- **Public health :** Hazards of disease on account of pollution of water bodies, breakdown of sewage and sanitary pipes, heart failures and other conditions leading to epidemics.



Seismologists use the latest survey techniques, with precision instruments like this laser rangefinder, to track earthquake or volcanic disturbances.

The damage earthquakes cause can be devastating, ranging from the collapse of buildings to huge cracks in the road.

- **Civic services and conveyances :** Civic services like water pipes, sewers, electric connections, roads, etc., are disrupted. Transmission towers and transformers also collapse.
- **Disruption of economic activities :** On account of widespread damage and destruction economic activities of the people like farming, business, trade and services are severely affected. It becomes one of the major factors in civic unrest.
- **Fire :** Collapse or breakdown of containers, small or big, containing inflammable substances like gas, petrol, kerosene, chemicals pose the dangers of major fire. Several times in the past in Japan, USA and India major fires were caused by earthquakes. Tremors, heat and suffocation then cause further damage.

Main Mitigation Strategies : Structural Mitigation

- **Engineered structures :** Engineered structures should be designed and built to withstand ground shaking. Architectural and engineering inputs need to be put together to improve building design and construction practice. Soil type must be analysed before construction. Structures must not be built on soft soil. Buildings erected on soft soils are more likely to get damaged even if the earthquake is not strong in magnitude. Similar problem is seen in alluvial plains and on the river banks. Heavy damages are sustained when ground is soft.

Non-Structural Mitigation Measures

- **Public awareness and education :** Even though it is still difficult to predict the exact place of occurrence of an earthquake but geophysicists and other scientists have immense information available in respect of time of actual shock as well as its intensity. This information should be made public over radio and television and published in newspapers well in advance. The public awareness and education should also include the following :
  - Real cause of earthquake and how earthquake waves are observed and recorded.
  - Do's and Dont's during the earthquake and thereafter.
  - Awareness about risks and geology of the area.
  - Sensitization of personnel engaged in relief work as well as construction of buildings like engineers, architects, masons, doctors and other health personnel, government functionaries, bankers and financiers.

Landslides

A landslide is a sudden movement of masses of rock, earth or debris with a force of their own weight down mountain slopes or river banks.

People who live in hilly terrains or along river banks experience landslides often. Landslides are generally associated with mountain terrains. These also take place in areas where activities like surface excavation for highways, buildings, fly-overs and bridges, underground railways, open pit mines take place. Recently, there was a newsreport of landslide in china's mining areas.

Landslides

Landslides are a major natural disaster in the Himalayas, Western Ghats and in the North Eastern region of the country covered by Pooravanchal Mountains. They cause damage to life, property, crops almost perenially. They also damage transportation and communication network, even causing long traffic jams.

Landslides are witnessed in floodplains during floods. Villages located near river banks often experience landslide during floods. They, often damage crops, cultivable land and houses.

Warning

Landslides occur due to many reasons. They may take place because of heavy rains in hilly areas, heavy snowfall, due to earthquakes, floods and volcanoes. Therefore, most of the landslides occur without any prior warning. Sometimes they occur gradually and can be noticed in advance. There are no clearly established warning systems in place to indicate occurrence of landslides. Hence, prediction of landslides is difficult.

However, areas of high risk can be determined by utilising information available on geology, hydrology, vegetation cover, past occurrence and consequences in the region. There is a need to be better prepared and adopt proper mitigation measures to reduce the damage to life and property.

Main Mitigation Strategies : Structural Mitigation

- **Drainage corrections :** During heavy rains, water infiltration into soils, debris, etc., is the most important reason for landslides. Therefore, the natural and easiest way is to reduce water infiltration by allowing excess water to drain off. Therefore, the first and foremost mitigation measure is drainage correction to prevent water logging. This involves maintenance of natural drainage channels in vulnerable slopes of hills and mountains.
- **Engineered structures :** Buildings and other structures should be built as per engineering inputs. Engineered structures with strong foundations can withstand the ground movement forces. Underground installations such as pipes, cables, etc., should be fitted flexibly to withstand forces caused by the landslides.
- **Retaining walls :** Retaining walls should be built along a slope to withstand forces and to stop land from slipping or sliding. These walls are visible along the roads at hill stations like Shimla.

Retaining walls

- **Mitigation strategies** in respect of earthquake related hazards need also be put into place. Earthquake related hazards include landslides, floods, fires, diseases, panic, breakdown of essential services like electricity, water, sewer services and even milk supplies. Earthquakes on land near the sea coasts may also trigger secondary earthquakes under ocean water, called tsunamis, which may give rise to cyclones and storms.
- **Vital lifelines** like roads, hospitals, electricity, telephone and water supply which may have been affected and temporarily suspended should be restored immediately.
- **Building bylaws and codes :** The Bureau of Indian Standards and the Indian Meteorological Department have prepared a map showing earthquake prone zones of different intensities. This map need to be widely publicised for avoiding construction of buildings in specified areas. It has also prescribed codes and building bylaws. The public should be asked to follow these guidelines strictly. The authorities should also vigorously follow zoning rules.
- **Vegetation cover :** The easiest, cheapest and most effective way of arresting landslides is to increase vegetation cover. This can be done through afforestation and avoiding grazing along the mountain slopes. Plants, trees and grass help to bind the top layers of the soil with layers below. Vegetation cover also prevents infiltration of water, and soil erosion. It also allows excess water to run off naturally and easily.

Non-Structural Mitigation

- **Land-Use Practices :** Land-use practices such as preserving and protecting natural vegetation should be adopted. This can be achieved by putting a check/ban on deforestation, i.e., cutting off branches of trees for fuel, timber and other purposes. Grazing of sheep and goats along the mountain slopes should be banned. Denuded upper slopes must be reforested with suitable trees. Blockage of natural drainage should be avoided while constructing roads, canals, building, etc.

- **Hazard Mapping :** Hazard mapping should be taken up by Government agencies, NGOs and others to locate and illustrate regions prone to landslides. This will help in avoiding construction of roads, buildings and bridges in areas prone to landslides.
- **Awareness generation :** Public awareness about the causes, effects, and areas prone to landslides is very essential. Imminent danger of landslides should be forecasted so that people may take safety measures.

Avalanches

Avalanche

An avalanche is a sudden and rapid flow of snow, ice, and sometimes rocks down a mountain slope. It is one of the most dangerous natural hazards in mountainous regions, especially in areas with heavy snowfall. Avalanches can occur naturally or be triggered by human activities such as skiing, snowmobiling, or construction. They pose serious risks to people, infrastructure, transportation routes, and the environment. Understanding avalanches, their causes, and ways to reduce their impact is essential for protecting lives and property in snow-covered mountainous areas.

Causes of Avalanches

Avalanches occur when the layer of snow on a slope becomes unstable and collapses. Several factors contribute to this instability:

1. **Heavy Snowfall:** A large amount of fresh snowfall in a short period increases the weight on existing snow layers, making them unstable.
2. **Weak Snow Layers:** Snow accumulates in layers over time. If a weak layer forms beneath a heavier layer, it can collapse and trigger an avalanche.
3. **Temperature Changes:** Rapid warming can cause snow to melt and lose its bonding strength, while sudden cooling can create fragile layers within the snowpack.
4. **Steep Slopes:** Avalanches are most common on slopes between 30 and 45 degrees, where gravity can easily pull the snow downward.
5. **Human Activities:** Skiers, mountaineers, vehicles, or construction activities can disturb the snowpack and trigger avalanches.
6. **Earthquakes or Vibrations:** Natural vibrations from earthquakes or loud sounds may also initiate avalanches in unstable snow conditions.

Strategies for Mitigation

Although avalanches cannot be completely prevented, several measures can reduce their risk and impact:

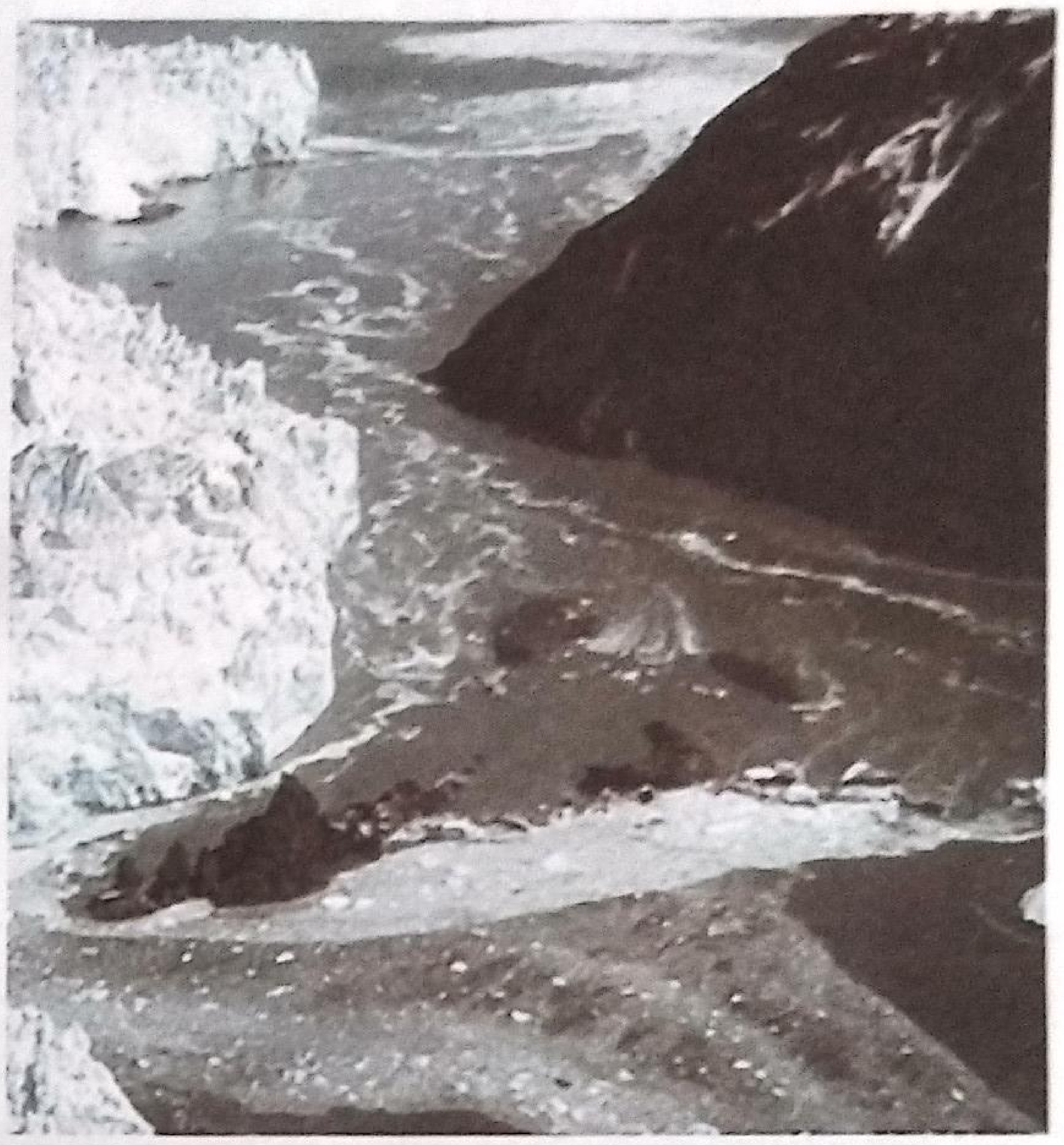
1. **Monitoring and Early Warning Systems:** Regular observation of snow conditions, weather forecasting, and avalanche prediction systems help warn people in advance.
2. **Controlled Avalanches:** Authorities sometimes deliberately trigger small avalanches using explosives to prevent the buildup of large, dangerous snow masses.
3. **Protective Structures:** Construction of snow fences, retaining walls, avalanche barriers, and diversion dams can protect roads, railways, and settlements.
4. **Land Use Planning:** Avoiding construction in high-risk avalanche zones reduces exposure to danger.

5. **Afforestation:** Planting trees on mountain slopes helps stabilize snow and reduce the likelihood of avalanches.

6. **Public Awareness and Training:** Educating people about avalanche risks, safety measures, and rescue techniques (such as carrying avalanche beacons and probes) improves survival chances.

Glacial Lake Outburst Flood (GLOF)

A Glacial Lake Outburst Flood (GLOF) is a sudden and massive release of water from a glacial lake. These lakes are formed when melting glaciers accumulate water behind natural dams made of ice or loose rock debris (moraines). GLOFs are among the most dangerous natural hazards in mountainous regions, particularly in the Himalayas, Andes, and other glacier-fed areas. When the natural dam holding the lake water fails, enormous volumes of water rush downstream at high speed, causing severe flooding, destruction of infrastructure, loss of life, and environmental damage. With rising global temperatures accelerating glacier melt, the risk of GLOFs has increased in many parts of the world.



Massive release of water from a glacial lake

Causes of GLOFs

GLOFs occur due to the sudden failure of natural dams that hold back glacial lakes. Several factors contribute to this failure:

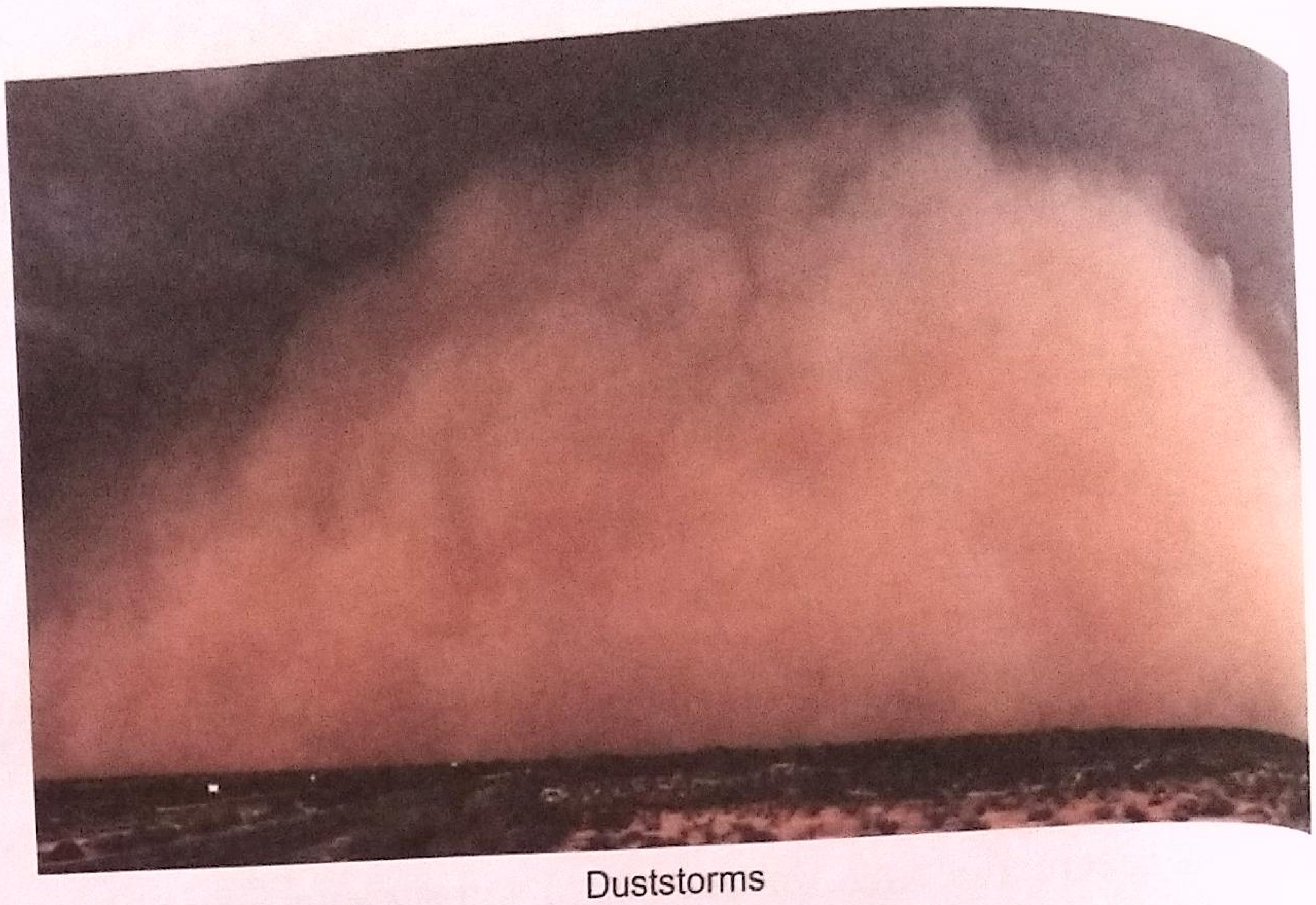
1. **Melting of Glaciers:** Climate change leads to rapid glacier melting, increasing the volume of water in glacial lakes and raising pressure on the natural dam.
2. **Weak Moraine Dams:** Many glacial lakes are blocked by loose piles of rocks and debris (moraines), which are unstable and prone to collapse.
3. **Ice Avalanches or Landslides:** Falling ice, rocks, or landslides into the lake can create large waves that overtop and breach the dam.
4. **Earthquakes:** Seismic activity can weaken or crack the natural dam, triggering sudden water release.
5. **Heavy Rainfall or Rapid Snowmelt:** Excess water from intense rainfall or sudden temperature rise can increase water levels beyond the dam's capacity.

Strategies for Mitigation

Although GLOFs cannot always be prevented, their impact can be reduced through proper planning and management:

1. **Regular Monitoring and Risk Assessment:** Satellite imagery, field surveys, and remote sensing technologies help identify potentially dangerous glacial lakes and monitor water levels.
2. **Early Warning Systems:** Installing sensors and alarm systems downstream can alert communities in case of sudden lake discharge.
3. **Controlled Drainage:** Engineering measures such as constructing drainage channels, tunnels, or siphon systems can safely reduce water levels in high-risk lakes.
4. **Strengthening Natural Dams:** Reinforcing moraine dams with protective structures can reduce the likelihood of sudden collapse.
5. **Land Use Planning:** Avoiding construction and settlement in flood-prone downstream areas minimizes damage and loss.
6. **Community Awareness and Preparedness:** Educating local populations about evacuation routes and emergency response plans improves safety and resilience.

Duststorms



Duststorms

Duststorms are severe environmental disasters that occur when strong winds lift large amounts of dust and sand from dry, bare soil into the atmosphere, reducing visibility and severely affecting human life, agriculture, infrastructure, and the environment. They are most common in arid and semi-arid regions but can also occur in areas experiencing drought or land degradation. Duststorms pose serious health risks, including respiratory problems such as asthma, bronchitis, and eye infections, and they can disrupt transportation by reducing visibility on roads and at airports. In addition, they damage crops, degrade soil fertility, contaminate water sources, and contribute to air pollution and climate change by transporting fine particles over long distances.

Causes of Duststorms

The primary causes of duststorms are both natural and human-induced. Naturally, prolonged drought, high temperatures, and strong winds create dry and loose soil conditions that make it easy for dust to be lifted into the air. Sparse vegetation cover in desert regions also contributes to soil exposure. Human activities such as deforestation, overgrazing, poor agricultural practices, urbanization, and excessive land clearing further increase soil erosion and desertification, intensifying the frequency and severity of duststorms. Climate change also plays a role by increasing temperatures and altering rainfall patterns, which can lead to more frequent droughts and degraded land surfaces.

Mitigation Strategies

To mitigate disasters associated with duststorms, a combination of environmental management and policy measures is essential. Afforestation and reforestation programs should be promoted to stabilize soil and act as windbreaks. Sustainable land management practices, including crop rotation, conservation tillage, and controlled grazing, can help maintain soil structure and reduce erosion. Governments should implement early warning systems and improve weather forecasting to alert communities in advance. Public awareness campaigns can educate people about protective measures, such as staying indoors and using protective masks during storms. Additionally, regional cooperation is important because duststorms often cross national boundaries. By adopting sustainable environmental practices and strengthening disaster preparedness strategies, the harmful impacts of duststorms can be significantly reduced.

Engage and Reflect

1. The instrument used to measure earthquakes is:
   (a) Thermometer (b) Seismograph (c) Barometer (d) Anemometer
2. A sudden flood caused by glacial lake burst is called:
   (a) Tsunami (b) GLOF (c) Cyclone (d) Tornado
3. A rapid downward movement of rock and soil is:
   (a) Avalanche (b) Landslide (c) Flood (d) Erosion
4. Avalanches occur mainly in:
   (a) Plains (b) Coastal areas (c) Mountain regions (d) Deserts

KEY LEARNINGS

- The surface of the earth is neither even nor regular. It gives rise to several landforms such as mountains, plateaus and plains, etc.
- Earthquakes result from sudden movements of the Earth's tectonic plates, causing the ground to shake violently.
- Water accumulated in glacial lakes is suddenly released due to the breaking of natural dams made of ice or moraines.
- Duststorms are severe environmental disasters that occur when strong winds lift large amounts of dust and sand from dry, bare soil into the atmosphere, reducing visibility and severely affecting human life, agriculture, infrastructure, and the environment.
- The primary causes of duststorms are both natural and human-induced.

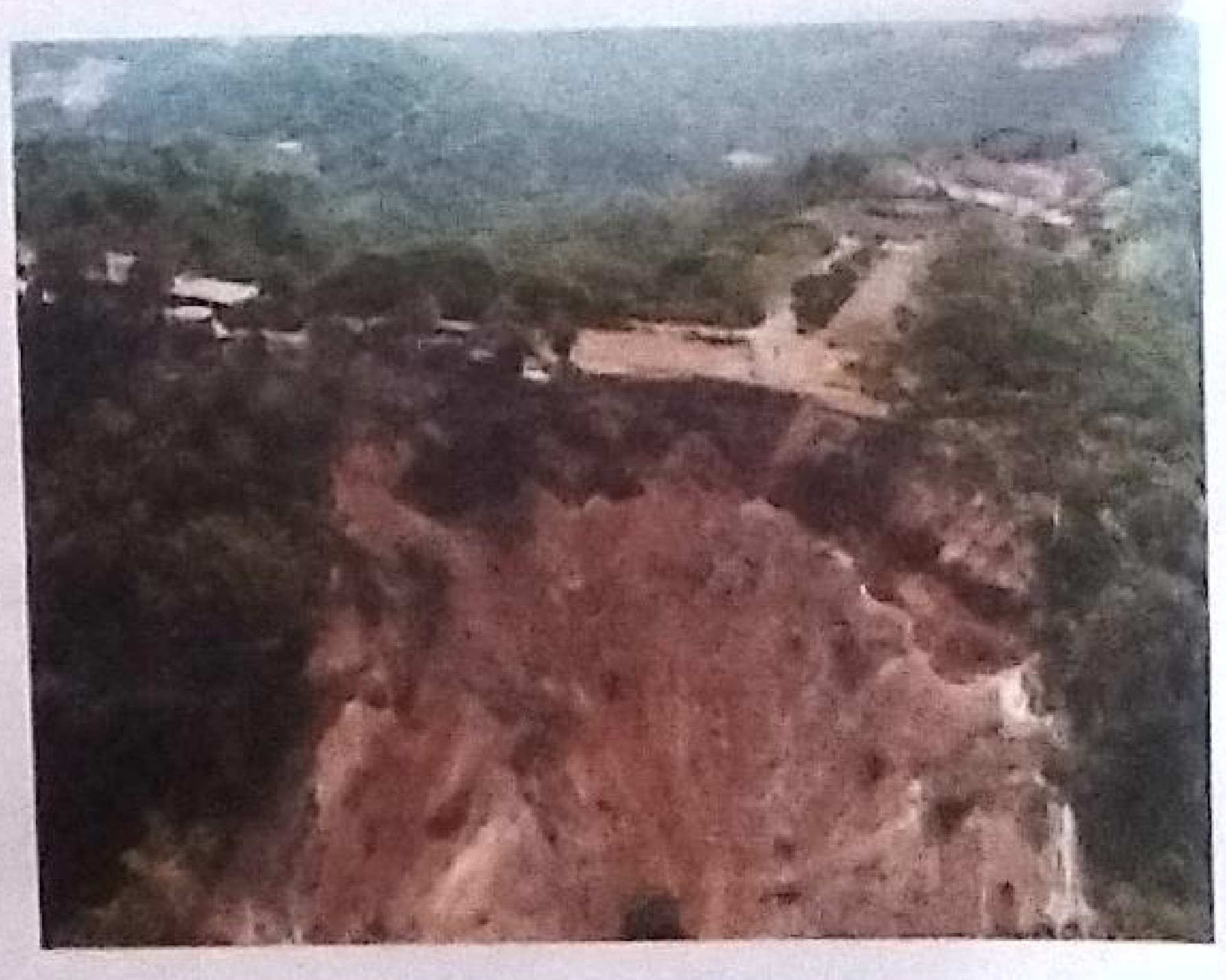
GLOSSARY

Lithosphere	: It is the hard, outermost layer of the Earth made up of the crust and the uppermost part of the mantle.
Ridge	: It is a long, narrow raised landform or elevated area, such as a chain of hills or mountains, usually forming a crest along higher ground.
Geology	: It is the branch of science that studies the Earth, including its rocks, structure, processes, and history.
Gorge	: A gorge is a deep, narrow valley with steep, rocky sides, usually formed by a river cutting through hard rock.
Convection	: It is the transfer of heat through the movement of fluids, such as liquids or gases, caused by differences in temperature and density.
Weathering	: It is the process by which rocks are broken down into smaller pieces by natural forces such as wind, water, temperature changes, and plants.
Erosion	: It is the process by which soil, rock, and other surface materials are worn away and carried off by wind, water, or ice.
Glacier	: It is a large, slow-moving mass of ice formed from compacted snow that moves over land under its own weight.
Seawave	: It is the movement of the water surface in the ocean caused by the wind blowing across it.
Plateau	: It is a large, flat, elevated area of land that rises sharply above the surrounding terrain.
Valley	: It is a low area of land between hills or mountains, often with a river or stream flowing through it.
Delta	: It is a landform formed at the mouth of a river, where it deposits sand, silt, and clay as it flows into a sea or lake.
Mitigation	: It is the act of reducing the severity, impact, or harmful effects of something, such as a disaster or risk.
Landslide	: It is the sudden downward movement of rock, soil, and debris on a slope due to gravity.
Avalanche	: It is a rapid flow of snow, ice, and rocks down a mountain slope.

Exercises

A. Multiple choice questions (MCQs).

1. The outermost layer of the Earth is called:
   (a) Core (b) Mantle (c) Crust (d) Lithosphere
2. A boundary where plates move apart is called:
   (a) Convergent (b) Divergent (c) Transform (d) Fold
3. The innermost layer of the Earth is:
   (a) Mantle (b) Crust (c) Core (d) Lithosphere
4. The mantle lies between:
   (a) Crust and Core (b) Core and Crust
   (c) Lithosphere and Core (d) Core and Atmosphere
5. The outer core is:
   (a) Solid (b) Liquid (c) Gaseous (d) Plastic
6. V-shaped valleys are formed by:
   (a) Wind (b) Glaciers (c) Rivers (d) Waves
7. Which of the following statements is true regarding Interior of the Earth?
   I. Our earth has a layered structure comprising of crust, mantle and core.
   II. As we move towards the centre of earth, the density of the different layers goes on increasing.
   III. The crust is made up of a great variety of rocks.
   IV. The average thickness of crust varies from 100 to 150 kilometres.
   (a) Only I (b) Only II
   (c) I, II, and III (d) Both III and IV



8. Identify the given image
   (a) Landslide (b) Avalanche
   (c) Drought (d) Tsunami
9. Consider the statements given below and choose the correct answer.
   Statement I: Glaciers which are comparatively bigger in size and slower in movement are called continenta glaciers.
   Statement II: They occupy large areas exceeding thousands of square kilometres.
   (a) Both statements are correct
   (b) Both statements are incorrect
   (c) Statement I is correct but Statement II is incorrect
   (d) Statement I is incorrect but Statement II is correct
10. Match the following items given in List I with those in List II.

	List I	List II
I.	Alfred Wegener	**A.** Japan
II.	Harry Hess and Robert S. Dietz	**B.** Roof of the World
III.	Tibet Plateau	**C.** Seafloor Spreading Theory
IV.	Mount Fujiyama	**D.** Continental Drift Theory

(a) A-IV, B-III, C-II, D-I (b) A-I, B-II, C-III, D-IV
(c) A-IV, B-I, C-III, D-II (d) A-III, B-IV, C-II, D-I

B. Fill in the blanks.

1. The solid outer covering of the earth which envelopes its interior portion is called __________
2. A narrow valley with steep walls is called __________
3. A __________ is a high landmass with sharply sloping surfaces.
4. A relatively flat and low- lying vast expense of land is called __________
5. __________ occur due to sudden failure of natural dams that hold back glacial lakes.

C. Very short answer type questions

1. Define plate tectonics.
2. Name the three main layers of the Earth.
3. What is weathering?
4. What is erosion?
5. Name two agents of erosion.
6. What is a glacier?
7. What is an earthquake?
8. What is a landslide?
9. What does GLOF stand for?

D. Short answer type questions.

1. Explain the theory of plate tectonics.
2. Describe the structure of the Earth.
3. Differentiate between weathering and erosion.
4. Explain the work of rivers as agents of gradation.
5. How do waves shape coastal landforms?
6. Describe the action of wind in deserts.
7. Explain the formation of U-shaped valleys.
8. What are the causes of earthquakes?
9. Write short notes on landslides.
10. What is GLOF? Explain its impact.

E. Long answer type questions.

1. Explain the theory of plate tectonics with suitable examples.
2. Describe the interior of the Earth with a neat labelled diagram.
3. Explain different types of weathering with examples.
4. Describe the role of rivers in erosion, transportation and deposition.
5. Explain the work of glaciers as agents of gradation.
6. Describe the formation of coastal landforms by waves and currents.
7. Explain the causes, effects and safety measures of earthquakes.
8. Describe landslides and avalanches with preventive measures.
9. Explain Glacial Lake Outburst Flood (GLOF) and its impact on mountain regions.
10. Discuss dust storms and their effects in arid regions.

F. **Assertion-Reason questions.**

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the cod provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)

(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(c) (A) is correct but (R) is wrong

(d) (A) is wrong but (R) is correct

1. **Assertion (A):** The outer core of the Earth is in a liquid state.
   Reason (R): The outer core is composed mainly of molten iron and nickel.
2. **Assertion (A):** Weathering and erosion are the same processes.
   Reason (R): Weathering breaks rocks in situ, while erosion involves transportation of materials.
3. **Assertion (A):** Most earthquakes occur along plate boundaries.
   Reason (R): Plate movements cause stress to build up in rocks, which is released in the form of seismic waves.
4. **Assertion (A):** Avalanches commonly occur in mountainous regions during winter.
   Reason (R): A large amount of accumulated snow becomes unstable and slides down steep slopes.

G. **Case-based questions.**

Read the given text and answer the following quetions.

In July 2023, after three days of continuous heavy rainfall in a small town in the Himalayan region, a massive landslide occurred. The slope above the town had been cut to construct a new road. Deforestation had also take place in the area for building houses and hotels.

Due to excessive rainfall, water seeped into the soil, making it loose and unstable. Suddenly, a large mass of rock, mud, and debris moved down the slope, destroying several houses and blocking the nearby river. Roads were damaged, electricity supply was disrupted, and many families had to be evacuated to safer places.

Experts later stated that both natural factors (heavy rainfall, steep slopes) and human activities (cutting of trees and road construction) contributed to the disaster.

1. Which layer of the atmosphere is primarily responsible for weather phenomena like the heavy rainfall described in the case study?
2. The unusually high temperatures before the monsoon could have contributed to the intensity of rainfall. Provide a valid reason to support this statement.
3. Name few human actions that could help reduce the frequency and impact of such floods in the future.

AI Buddy

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- get answers to your queries/questions.
- play with AI.
- create topicwise notes.
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Theme III : Atmosphere and Climate

3

The Dynamic Atmosphere and Changing Climate

KEY CONCEPTS

- Structures and Composition of Atmosphere
- Elements of Weather and Climate
- Seasons and Monsoon in India
- Climate Change
- Floods
- Carbon Footprint

The Earth is surrounded by a thick layer of air known as the **atmosphere**. This atmosphere plays a vital role in making life possible on our planet. It provides the air we breathe, protects us from harmful solar radiation, and helps regulate the Earth's temperature. Without the atmosphere, the Earth would be too hot during the day and too cold at night.

Climate refers to the average weather conditions of a place over a long period of time. It influences natural vegetation, wildlife, human activities, and patterns of settlement. The atmosphere and climate together control weather phenomena such as rainfall, winds, storms, and seasons.

Understanding the atmosphere and climate is important because they directly affect our daily lives, agriculture, water resources, and the overall environment. In this chapter, we will learn about the composition and structure of the atmosphere, the factors affecting climate, and the relationship between atmosphere, weather, and human life.

STRUCTURE AND COMPOSITION OF ATMOSPHERE

The **atmosphere** is a thick blanket of gases that surrounds the Earth and extends hundreds of kilometres into space. It is held close to the Earth by gravity.

Structure of the atmosphere

The atmosphere is not uniform. Based on **temperature changes with height**, it is divided into **five distinct layers**. These distinct layers are called Troposphere, Stratosphere, Mesosphere, Thermosphere (Ionosphere), and Exosphere.

Troposphere

The troposphere extends from 8 km near the poles to 18 km near the equator. The word 'tropo' means mixing, which refers to the continuous mixing of gases in this layer, giving its name.

The troposphere contains nearly 75 per cent mass of the atmosphere and all essential gases, such as water vapour and primary greenhouse gases. All weather phenomena such as precipitation, storms, and lightning, occur in this layer. This is the layer where all life forms exist, making it the most important layer for sustaining life on Earth.

In this layer, the temperature decreases with altitude at an average rate of 1° C for every 165 m. This is known as the lapse rate.

Importance:

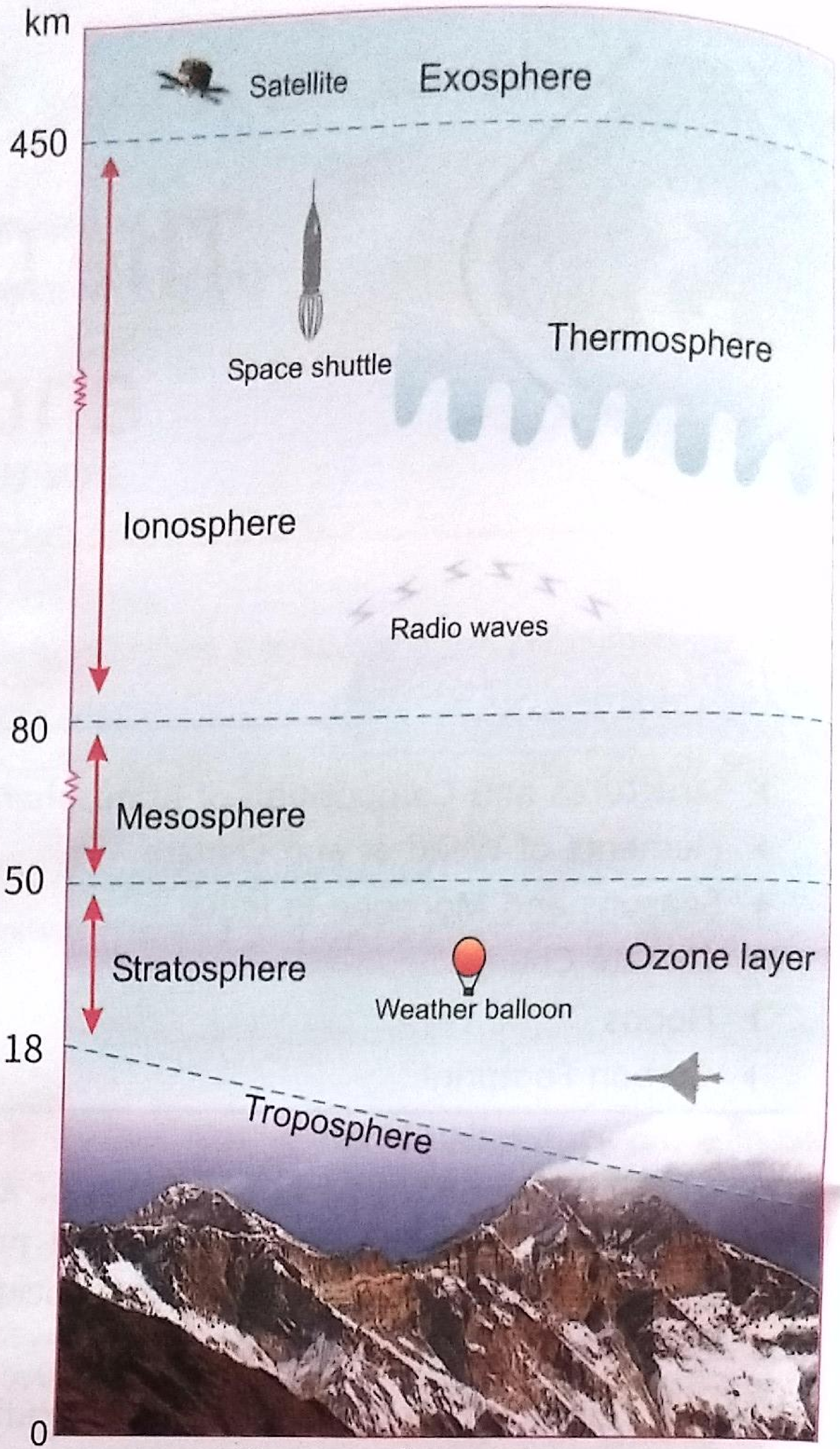
This layer supports life and controls weather and climate. Most living organisms depend directly on this layers.

Stratosphere

The layer above the troposphere is called the stratosphere. The stratosphere has a cold lower section and a warmer upper section forming two distinct layers. The name 'Strato' means 'layer'. It extends up to about 50 km above the Earth's surface. The boundary between the troposphere and stratosphere is known as the tropopause.

Since the Stratosphere contains very little moisture and dust and has minimal air turbulence, it is ideal for flying airplanes.

The ozone layer, located in the stratosphere, protects us from harmful UltraViolet (UV) rays. As altitude increases within the stratosphere, the temperature also rises.



Structure of atmosphere

Importance:

It protects life on Earth by preventing harmful solar radiation. By filtering UV radiation, the stratosphere protects crops, forests, plankton and marine ecosystems which are essential for food chains and oxygen production.

Mesosphere

The layer that lies above the stratosphere is called the mesosphere. It roughly extends up to 80 km from the Earth's surface. This layer lies between two layers above and two layers below it which is why it is called the mesosphere. Meso means middle.

The boundary between the stratosphere and mesosphere is termed the stratopause.

As meteorites enter this layer, they burn up due to friction with gaseous particles. Meteorites appear to us as shooting stars, but they are not actual stars.

Importance:

It protects Earth from falling meteoroids. It helps maintaining energy balance by absorbing and redistributing heat from both below and above.

Ionosphere

This layer is also known as the thermosphere, and it roughly extends up to 450 km. The name ionosphere comes from the fact that the atoms of gases in these layers get converted into ions due to solar radiation.

In the thermosphere, as we go upward, the temperature rises and reaches up to 2000° C. It is the hottest layer of the atmosphere. This layer helps in satellite communication and radio transmission.

Importance:

It is essential for long-distance communication. The thermosphere acts as Earth's radiation shield and communication layer, playing a vital role in protecting life and supporting technology.

Exosphere

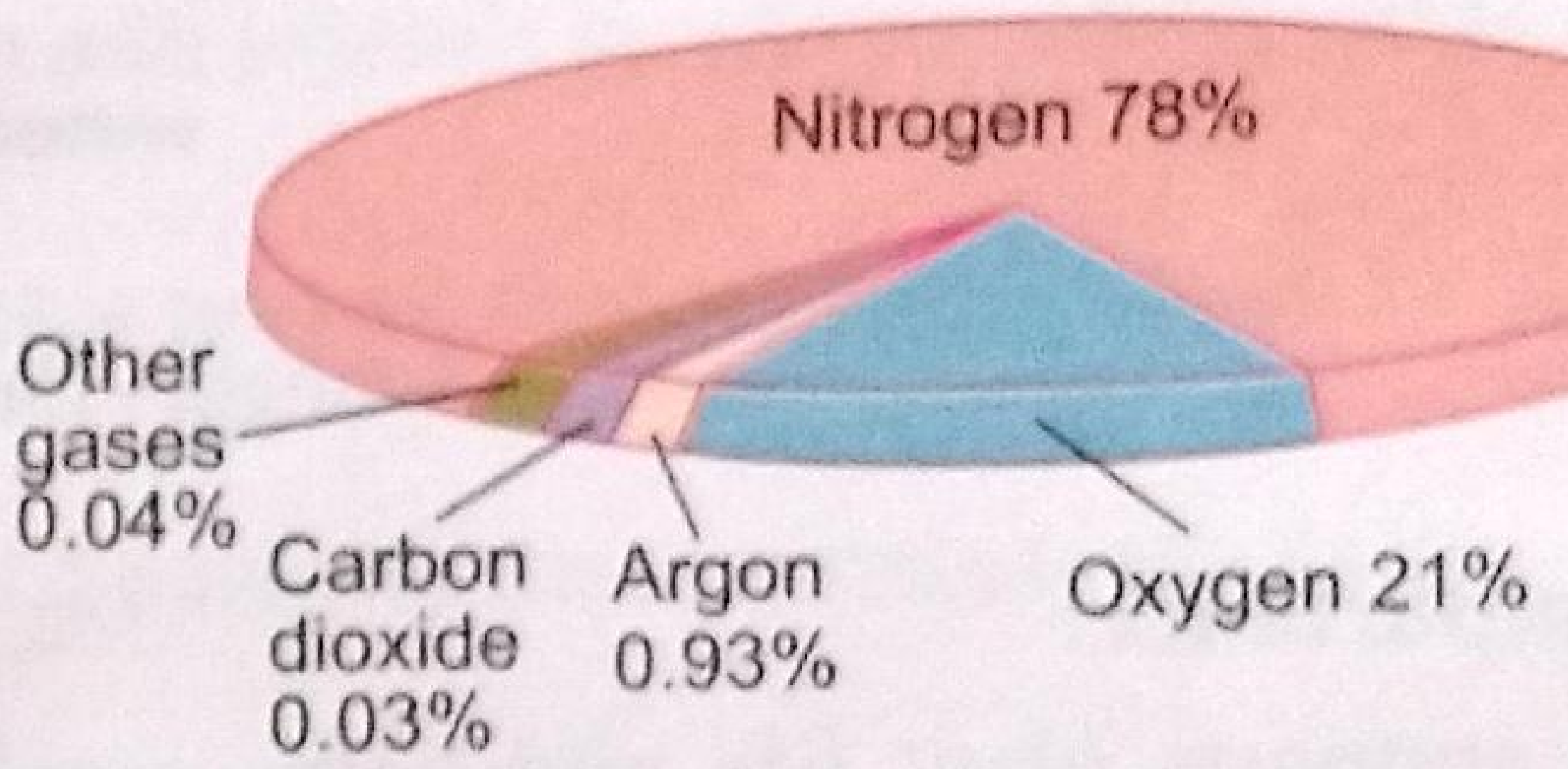
The exosphere is the outermost layer of the atmosphere, which ultimately merges with space. It lacks dust, oxygen, nitrogen, and water vapour. However, traces of hydrogen and helium are found here.

Importance:

Many communication, weather and naviagation satellites orbit in the exosphere, enabling GPS (Global Positioning System), television, internet and weather forecasting, acts as the transition zone between Earth's atmosphere and outer space.

Composition of the atmosphere

The atmosphere is a mixture of different gases, water vapour, and dust particles that surrounds the Earth. These components are essential for sustaining life, regulating temperature, and supporting natural processes like respiration, combustion, and rainfall. The proportion of gases in the atmosphere remains almost constant up to a height of about 90 km.



Composition of the atmosphere

Major Gases of the Atmosphere

1. Nitrogen (78%)

- Largest component of the atmosphere
- Does not support respiration or burning directly
- Reduces the intensity of oxygen and prevents rapid combustion
- Essential for plant growth (nitrogen cycle)

Importance:

Nitrogen–enriched soil leads to better crop yields making it vital for agriculture and food production.

2. Oxygen (21%)

- Second most abundant gas
- Essential for respiration in humans and animals
- Supports combustion
- Needed for oxidation processes

Importance:

Without oxygen, life on Earth would not be possible. It is also necessary for burning and combustion, which is important for cooking industries, and energy production.

3. Argon (0.93%)

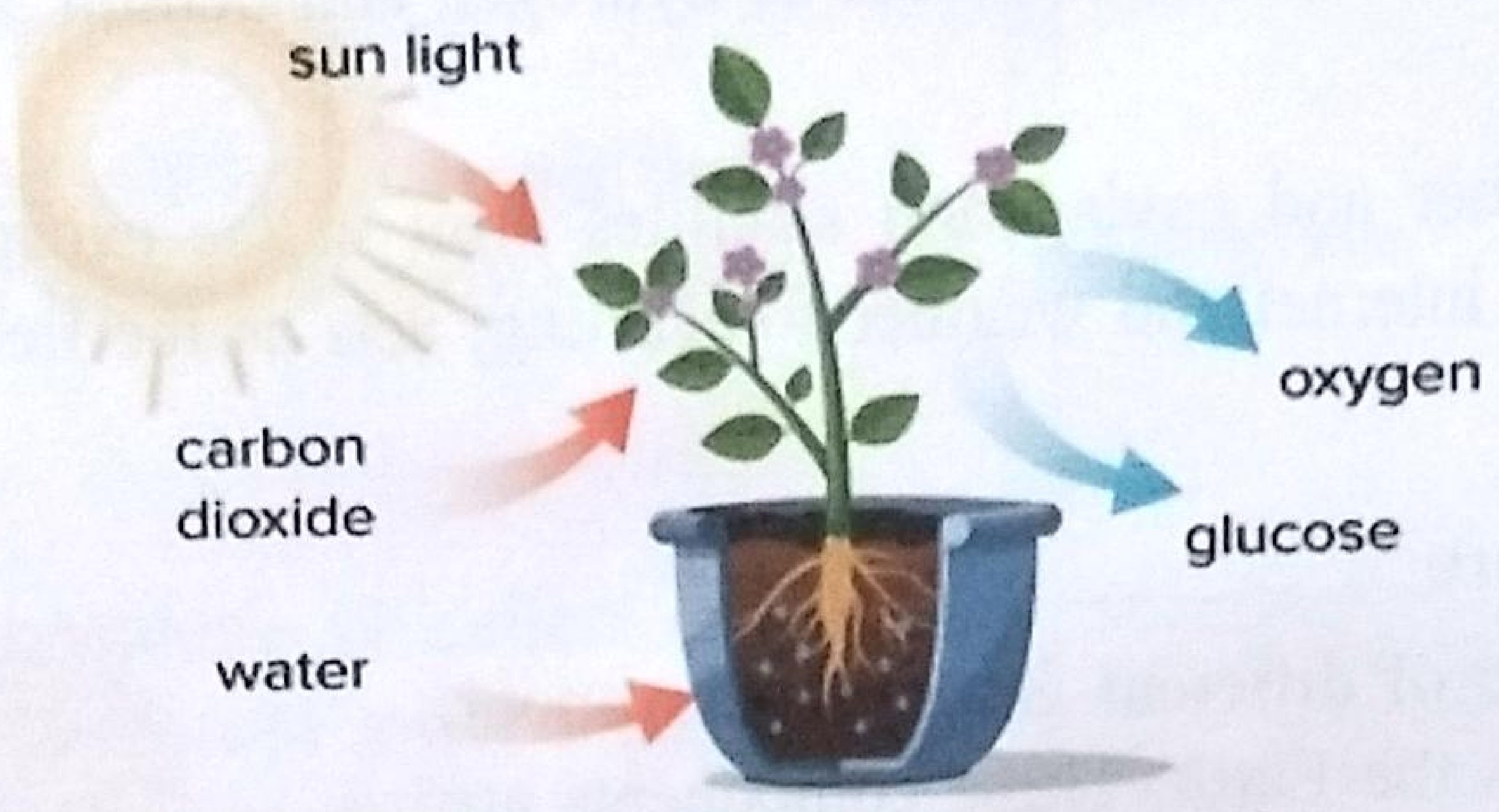
- Chemically inactive gas
- Does not take part in biological processes
- Used in electric bulbs and welding

Importance:

It maintains balance in the atmosphere and prevents unwanted chemical reactions. It is also used to protect food, wine and historical documents from oxidation.

4. Carbon Dioxide (0.04%)

- Present in very small quantity but extremely important
- Used by plants for photosynthesis
- Helps in maintaining Earth's temperature through the greenhouse effect
- Released by respiration and burning of fuels



Sunlight + Carbon dioxide + Water → Glucose + Oxygen

Photosynthesis

Importance:

It supports plant life and helps regulate global temperature. It dissolves in water to form carbonic acid which influences ocean pH and marine life.

Other Components of the Atmosphere

(i) Water Vapour

- Amount varies from place to place
- Responsible for humidity
- Forms clouds, rain, fog, and dew
- Absorbs heat and moderates temperature

Importance:

It plays a crucial role in weather and climate. It also plays a central role in the hydrogical cycle, moving water between oceans, atmosphere and land.

(ii) Dust Particles

- Includes smoke, pollen, salt, and soil particles
- Help in the condensation of water vapour
- Cause colourful sunsets and sunrises

Importance:

Dust particles are necessary for rainfall formation. Dust blown from deserts carries minerals and nutrients to oceans and soils, enriching ecosystems and supporting plant and marine life.

(iii) Ozone (Trace Amount)

- Found mainly in the stratosphere
- Absorbs harmful ultraviolet (UV) rays

Importance:

It protects living organisms from skin cancer and genetic damage. The ozone layer absorbs most of the Sun's Ultra violet radiations, which can cause skin cancer, cataracts, and damage to plants and marine life.

Conclusion

The atmosphere is a carefully balanced mixture of gases, water vapour, and dust particles. Each component has a specific role in supporting life, controlling climate, and maintaining environmental balance. Even gases present in very small amounts are extremely important for the survival of living organisms on Earth.

Engage and Reflect

1. Which layer of the atmosphere contains the ozone layer that protects Earth from harmful UV radiation?
   (a) Troposphere (b) Stratosphere (c) Mesosphere (d) Thermosphere
2. The layer of the atmosphere where weather phenomena occur is:
   (a) Mesosphere (b) Troposphere (c) Stratosphere (d) Exosphere
3. Which of the following gases is most abundant in Earth's atmosphere?
   (a) Oxygen (b) Nitrogen (c) Carbon dioxide (d) Argon

KEY LEARNINGS

- The atmosphere is a thick blanket of gases that surrounds the Earth and extends hundreds of kilometres into space.
- The troposphere contains nearly 75 per cent mass of the atmosphere and all essential gases such as water vapour and primary greenhouse gases.
- The atmosphere is a mixture of different gases, water vapour, and dust particles that surrounds the Earth.
- Without oxygen, life on Earth would not be possible.
- The ozone layer absorbs most of the Sun's Ultraviolet radiations, which can cause skin cancer, cataracts, and damage to plants and marine life.

ELEMENTS OF WEATHER AND CLIMATE

Weather refers to the day-to-day conditions of the atmosphere at a particular place, while climate is the average of weather conditions over a long period of time. Weather and climate are controlled by certain basic elements known as the elements of weather and climate. These elements help us understand atmospheric conditions and their impact on human life and the environment.

1. Temperature

Temperature is a fundamental element of both weather and climate. It refers to the degree of hotness or coldness of the air. Its variations help scientists understand both immediate weather conditions and long-term climate trends.

It is measured using a thermometer. It is expressed in degrees Celsius (°C). It affects air pressure, winds, and rainfall. High temperature leads to expansion of air, while low temperature causes contraction.

There are different types of thermometers used to measure temperature. Some thermometers show the current air temperature, while others are designed to record the highest (maximum) and lowest (minimum) temperatures over a day.

35 6 37 8 9 40 1 42 C
94 6 8 100 2 4 6 108 F

Traditional Thermometer

Digital Thermometer

Most traditional thermometers contain a coloured liquid (usually alcohol or mercury) that expands when heated and contracts when cooled to indicate temperature changes. However, digital thermometers are becoming popular because they are fast, more accurate and can store more data.

These temperature readings can also help us calculate important statistics such as:

- **Temperature Range:** This is the difference between the maximum and minimum temperatures recorded over a period, usually 24 hours.
  (*Range = Maximum temperature – Minimum temperature*)

- **Mean Daily Temperature:** This is the average temperature of the day, calculated by adding the day maximum and minimum temperatures and dividing by two. Mean = (Maximum + Minimum) ÷ 2

2. Atmospheric Pressure

Our bodies are very sensitive to changes in weather, especially temperature and rainfall, but another important factor that affects how the weather feels is atmospheric pressure. Atmospheric pressure is the force exerted by the weight of the air above us pressing down on the Earth's surface. Although we don't see air it has weight, and this weight pushes down all around us.

Engage and Reflect

- Record the temperature at three different times of the day (morning, afternoon, evening) for three days using a thermometer or weather app.
- Make a table of your findings, compare and contrast the temperature of any other place in a different state on the same three days. Analyse the difference in temperature.

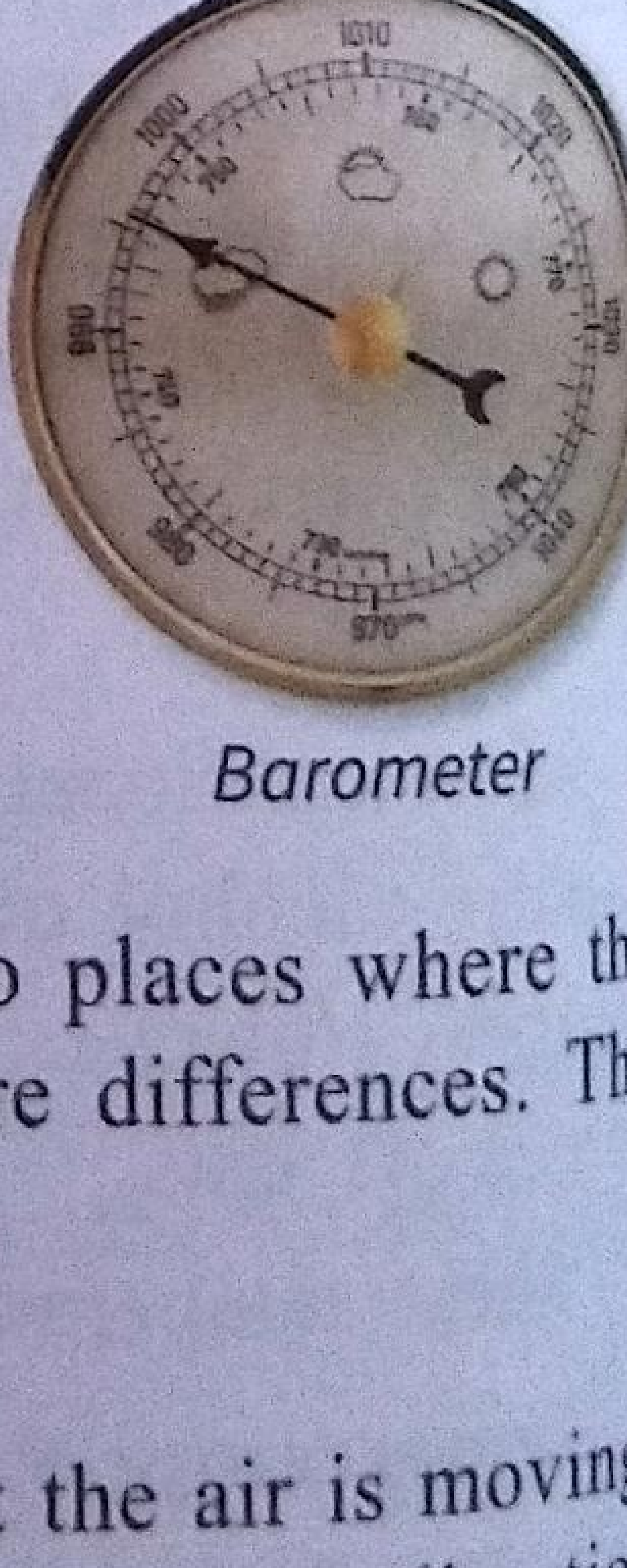
Atmospheric pressure is generally higher at places close to sea level, such as coastal areas, because the air above is denser and heavier. As you move to higher altitudes, like when climbing a mountain, the air becomes thinner, meaning there are fewer air molecules pressing down. This causes the atmospheric pressure to drop. Because of the thinner air, there is also less oxygen available, which makes breathing harder. This is why at high altitudes, people may feel tired, dizzy, or short of breath; their bodies have to work harder to get enough oxygen.

Atmospheric pressure doesn't just change with altitude. It also changes with weather conditions. Sometimes, the pressure falls suddenly over a region, forming what meteorologists call a low-pressure system or a depression. These low-pressure areas often bring unstable weather, including clouds, rain, and strong winds. When the low-pressure system intensifies, it can develop into a storm or even a cyclone, which are powerful and dangerous weather events.

In contrast, regions of high pressure usually bring clear skies and calm weather because the air is heavier and sinks, preventing clouds from forming. Understanding these pressure systems helps meteorologists predict weather changes and warn us about approaching storms.

So, atmospheric pressure plays a vital role in shaping the weather we experience every day and can directly affect how we feel physically, especially in extreme conditions.

The device used to measure atmospheric pressure is known as a **barometer**. Similar to thermometers, barometers come in different types. They usually show pressure readings in millibars (mb). At sea level, the average atmospheric pressure is about 1013 mb or 1 ATM. When the pressure falls below 1000 millibars, it usually signifies the presence of a depression or low-pressure system.



Barometer

3. Wind

Wind is essentially air in motion, moving from areas where the air pressure is high to places where the pressure is lower. This movement happens because nature always tries to balance pressure differences. The greater the difference in pressure between two areas, the stronger the wind tends to be.

Speed and Direction

The two main features of wind are its speed and direction. Wind speed tells us how fast the air is moving, usually measured in kilometers per hour (km/h) or meters per second (m/s). Wind direction shows the direction from which the wind is blowing – for example, a north wind means the wind is coming from the north.

Why is Wind Important?

Wind affects many aspects of our daily life and the environment:

- **Weather Forecasting:** Meteorologists study wind patterns to predict weather changes. For example, a shift in wind direction can indicate that a storm or rain is approaching.
- **Aviation and Sailing:** Pilots and sailors must understand wind conditions to navigate safely and efficiently. Strong winds can affect the speed and course of airplanes and boats.
- **Agriculture:** Farmers watch the wind to forecast rain or dry spells. Wind can also influence the evaporation of water from soil, affecting irrigation needs.
- **Environmental Impact:** Wind helps disperse seeds and pollen, aiding plant reproduction. It can also spread pollutants or wildfire smoke over large distances.

Measuring Wind: Wind Vanes and Anemometers

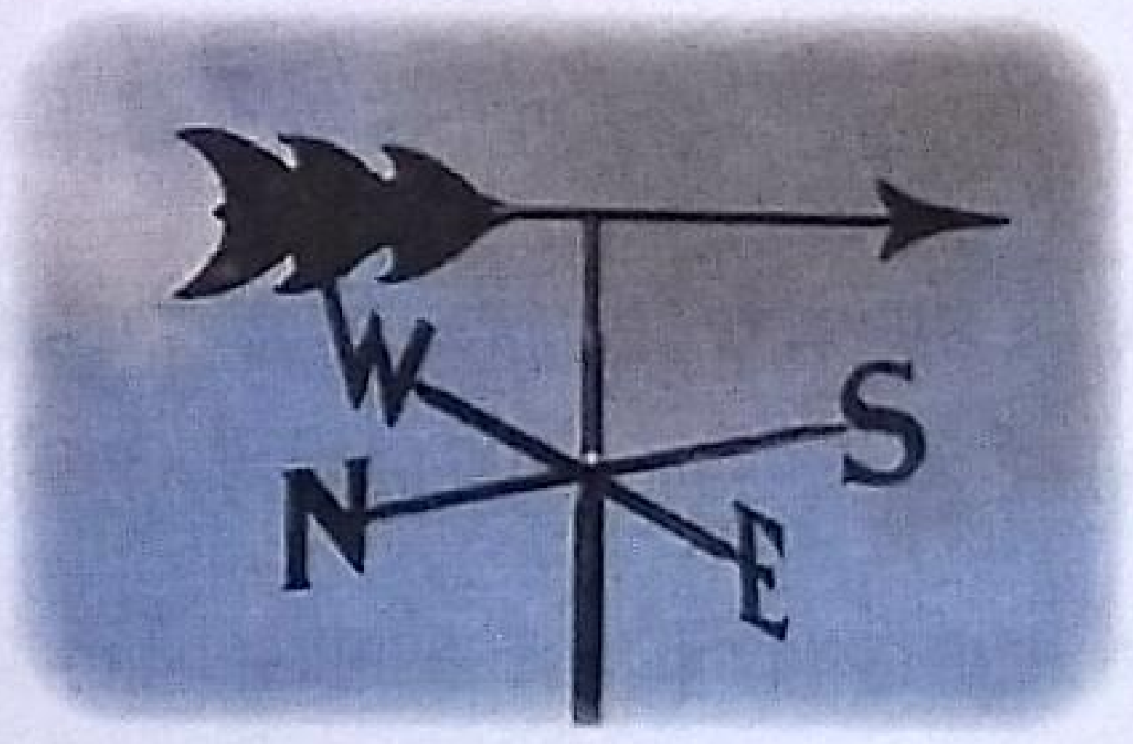
A wind vane shows the direction of the wind. It has a pointer and a tail mounted on a rotating axis. When the wind blows, the tail catches the breeze and turns the pointer towards the source of the wind. This tool helps us know exactly where the wind is coming from.

To measure how fast the wind is blowing, an **anemometer** is used. This instrument usually has cups or blades that spin faster as the wind speed increases. The speed of rotation is converted into wind speed readings.

4. Humidity

Humidity is the final weather element we will explore. It describes how much water vapour is present per unit of air. The level of humidity can vary based on several factors, including temperature, wind, air pressure, and the geographical location of a place.

To answer such questions accurately, we need to understand how humidity is measured.

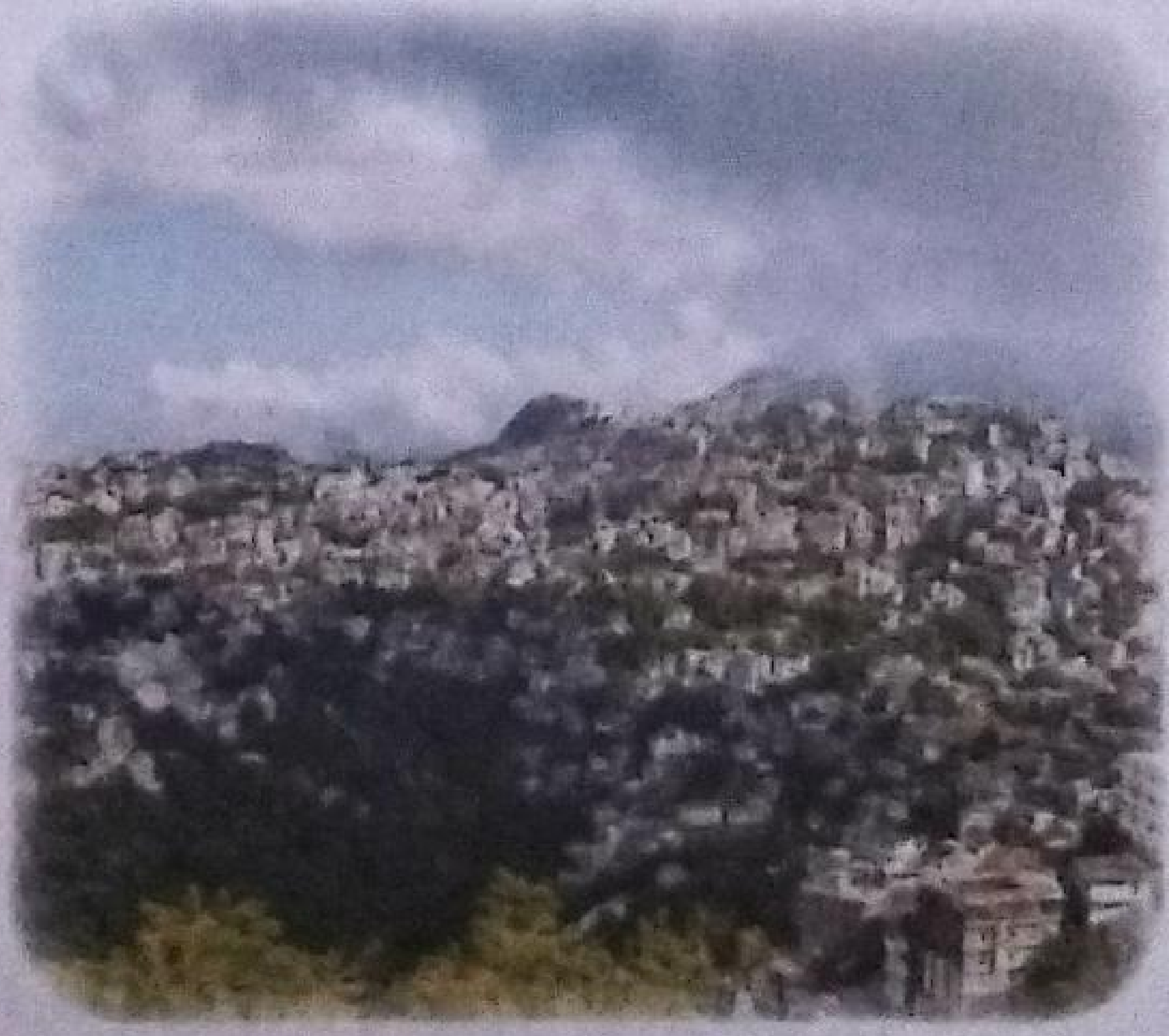


Wind Vane

Anemometer

Engage and Reflect

Where do you think the humidity is likely to be higher – Chandigarh or Aizawl? You might assume that Aizawl has more humidity because it is located in a hilly region that receives a lot of rainfall. But how can we be certain? If we wanted to compare the humidity levels between Chandigarh and Aizawl, how would we go about it? Discuss this with your classmates.



But before we go further, let's recall what we learned about the different states of water. That knowledge will help us better understand the concept and measurement of humidity.

- When water evaporates, it produces a cooling effect.
- However, if the air already contains a lot of moisture (high humidity), evaporation happens more slowly.

This is often what we experience on a rainy day.

The humidity in the air is measured using a scale called relative humidity, which tells us how much moisture the air is holding compared to how much it could hold at that temperature. If the air had no moisture at all (which almost never happens in nature), its relative humidity would be 0%. On the other hand, if the air is completely full of water vapour, it is said to have 100% relative humidity, meaning it can't hold any more moisture. In everyday conditions, dry weather usually means the relative humidity is between 20% and 40%, while humid weather, when the air feels sticky and moist, falls between 60% and 80%.

Engage and Reflect

If the humidity level in Kanpur is 52% and in Mumbai it is 84%, where do you think wet clothes would dry more quickly? And in which city would you be sweating more, assuming the temperature is the same in both places?

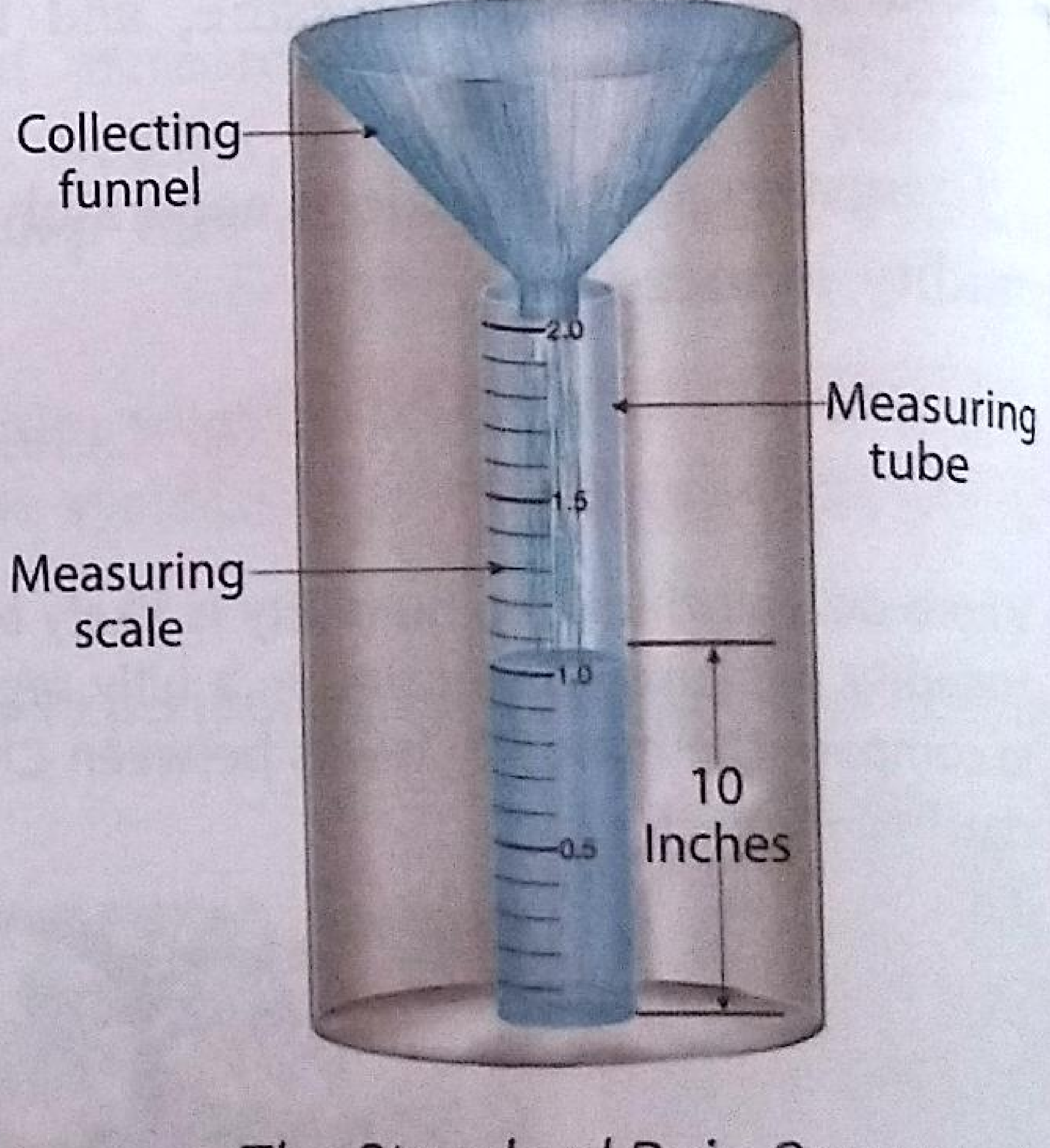
So how are these humidity levels measured? This is done using an instrument known as a **hygrometer**. There are different types of hygrometers, each working on a different principle. Measuring humidity is very important in various fields, for example, in food processing industries, where the right moisture levels must be maintained. Even museums carefully track humidity to keep the air dry and protect valuable artefacts from damage.

0
10
20
30
40
50
60
70
80
90
100

Hygrometer

5. Precipitation

When the news reports that a place received 30 millimetres (mm) of rainfall in a day, it means that 30 mm of rainwater fell and collected on the ground in that area. To understand it better, imagine if there were no drains or slopes, then the rain would form a layer 30 mm deep on the flat ground. That's about as thick as three 10 coins stacked together.



The Standard Rain Gauge

But how do we know how much it rained? We use a special instrument called a **rain gauge**. A rain gauge is a simple tool used by weather scientists to measure rainfall. It has a wide funnel at the top, which catches the rain and directs it into a cylinder or container. This container has markings or a scale on it so that we can read how much rain has collected.

Let's say the water collected in the container rises to the 15 mm mark. That means the area got 15 mm of rain during that time. If it rises to 30 mm, then it received 30 mm of rainfall.

Rainfall is usually measured over a 24-hour period, and the results help farmers, weather forecasters, and disaster management teams prepare for floods, droughts, or crop planning. Even in your city, regular rainfall records help the local government manage water supply and drainage systems.

SEASONS AND MONSOON IN INDIA

A distinct seasonality is a prominent character of the monsoon type of climate. The weather changes also occur from one season to the other and are obvious to anyone observing it, especially in the interiors

Engage and Reflect

1. The instrument used to measure atmospheric pressure is called:
   (a) Thermometer
   (b) Barometer
   (c) Hygrometer
   (d) Anemometer
2. Humidity refers to the:
   (a) Amount of wind in the atmosphere
   (b) Amount of water vapour in the air
   (c) Atmospheric pressure at a place
   (d) Intensity of sunlight
3. When the temperature difference between land and sea increases, it mainly affects:
   (a) Precipitation patterns
   (b) Wind circulation and monsoon formation
   (c) Earth's rotation
   (d) Solar radiation

KEY LEARNINGS

- Weather refers to the day-to-day conditions of the atmosphere at a particular place, while climate is the average of weather conditions over a long period of time.
- The two main features of wind are its speed and direction.
- The level of humidity can vary based on several factors, including temperature, wind, air pressure, and the geographical location of a place.
- The humidity in the air is measured using a scale called relative humidity.
- A rain gauge is a simple tool used by weather scientists to measure rainfall.

of India. Not much difference in temperature can be seen in the coastal areas but a distinct pattern is seen in the rainfall that occurs here.

India experiences four main seasons :

1. Hot Weather Season
2. Cold Weather Season
3. Advancing Monsoon Season
4. Retreating Monsoon Season.

1. Hot Weather Season (Summer) : The sun's northward movement causes the global heat belt to shift northwards. This causes the hot weather season in India from March to May. The effect of the shifting of heat belt can be seen clearly from the temperature recordings during March–May at different stations that are located at various latitudes. The temperature is around 42°°C in April in Gujarat and Madhya Pradesh. The temperature of 48 °C is common around May in northwestern regions of India. The moderating effect of the ocean is very obvious when we observe the temperature in peninsular India. The Deccan Plateau experiences a temperature up to 38°°C .

In north India, rising temperature and falling air pressure occur in the summer months. An extended low pressure area develops in north India by the end of May. This low pressure area extends from the Thar Desert in the northwest to Patna and Chhotanagpur plateau in the east to southwest. Around this trough the circulation of air begins to set in.

A unique feature of the hot weather season in India is the **loo**. The loo are strong, hot and dry winds that blow during the day in summer, over northern and northwestern India. They may even continue till midnight. Many people suffer from heat strokes or other fatal consequences when they are exposed to these hot winds. During May the areas experience dust storms in the evening. These dust storms bring some relief from the intense, oppressive heat for a brief time. They are accompanied by light drizzle and cool breeze. In some areas locally formed thunderstorms along with violent winds, torrential rainfall with hailstorms may also occur.

When the summer season is about to reach an end, Kerala and Karnataka experience pre-monsoon showers. These showers are vital in aiding the ripening of the mango crop; hence they have earned the name of **mango showers**.

2. Cold Weather Season (Winter) : By mid-November the cold weather season sets in north India. It prevails in the area till February. The coldest months of these seasons are December and January. The temperature at this time decreases from south to north. The mean temperature is between 24°°C and 25°°C in Chennai but in the northern plains the temperature is between 10°C and 15°C. The days are mostly warm but the nights are cold. In the higher regions frost is a common occurrence.

In the winter season, the northeast trade winds prevail over the country. Blowing from land to sea, they cause most of India to experience a dry season. However, the coasts of Tamil Nadu receive most of its rains from these winds as they reach here from sea to land.

In north India, a weak high pressure area is developed. Light winds blow outwards from this region. They are affected by the relief. These winds blow through the Ganga valley from west and northwest. The fine weather in this season is marked by clear sky, low temperature and low humidity.

The inflow of depression from west and northwest is the prominent characteristic feature of the cold weather season over the north Indian Plains. Known as the **Western Disturbances,** these low pressure systems originate over the Mediterranean Sea and Western Asia. They are brought in by the westerly jet stream. The vital winter rain required by the land is caused by these low pressure systems. The winter rain falls over the plains and the Himalayas experience snowfall. This meagre rainfall is important for the rabi crops and i known locally as **'mahawat'**.

The peninsular region has no particular winter season. There is not much seasonal change in the distribution pattern of temperature due to the influence of the sea.

3, Advancing Monsoon–Rainy season : The intensity of the low pressure conditions over the north-western plains is increased by first week of June. They are strong enough to attract the trade winds of the Southern Hemisphere. These ocean-originating southeast trade winds move over the Indian Ocean and cross the Equator to follow the south-westerly direction. As they pass over the equatorial warm currents they carry a lot of moisture in them.

The monsoons are pulsating winds as compared to the steady trade winds. These strong winds tend to blow at an average speed of 30 km per hour. They blow all over the country in a month's time, leaving only the extreme northwest. Violent thunder and the lightning that mark the sudden approach of these moisture rich winds bring on what is popularly known as the breaking of the monsoon. The southwest monsoon that flows into India bring about a major change in its weather.

The Indian Peninsula divides the monsoons into two branches :

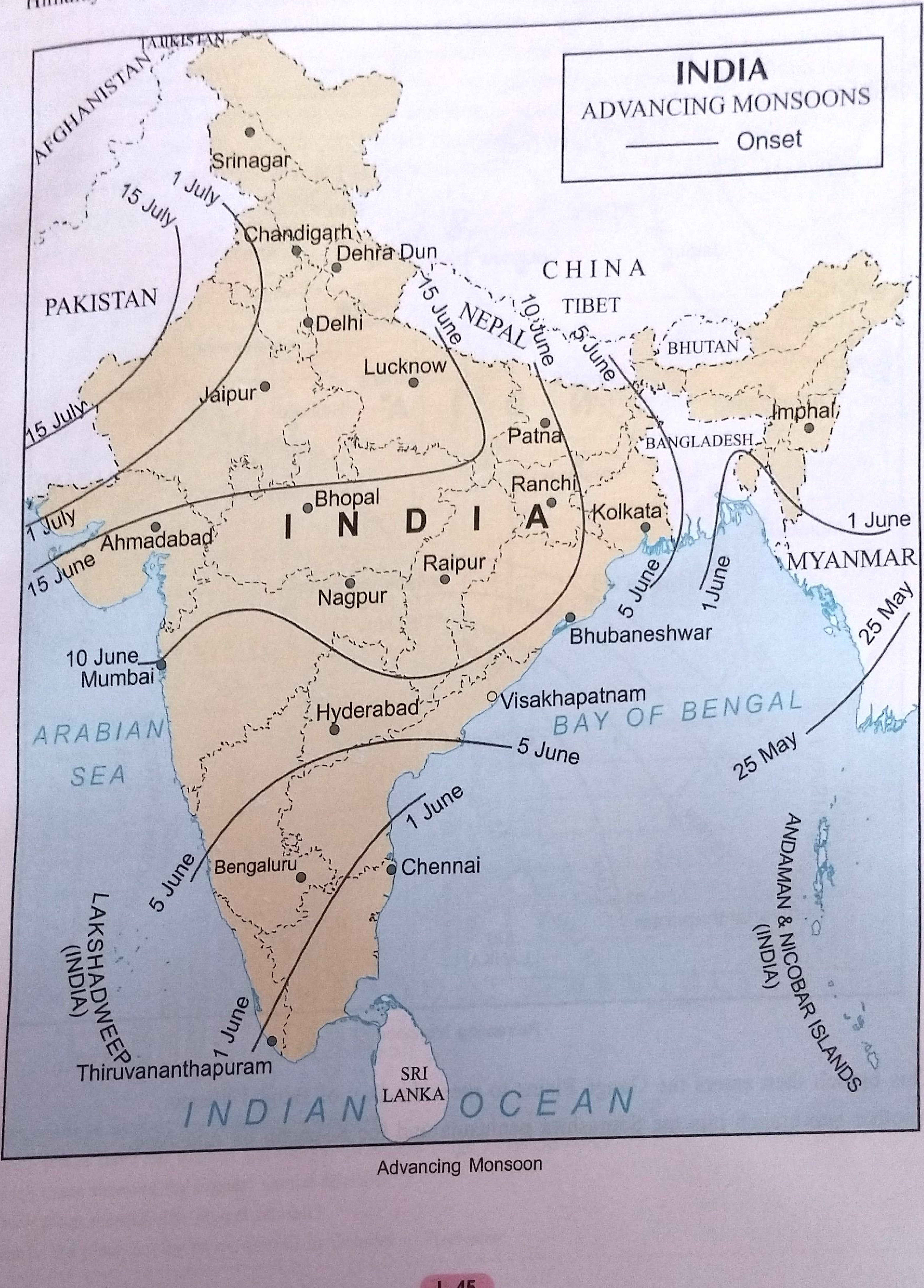
(i) The Arabian Sea Branch

(ii) The Bay of Bengal Branch

Characteristics of the Arabian Sea Branch

- The Arabian Sea branch reaches Mumbai by 10th June.
- The Western Ghats pose an obstruction to this branch of monsoon.
- Heavy rains occur on the windward side of the Sahyadris.
- This monsoon branch crosses the Ghats and reaches the Deccan Plateau and Madhya Pradesh, where it causes some rainfall.

- Delhi receives rainfall by the 29th of June.
- As this branch passes over western Rajasthan it causes scanty rainfall.
- This branch meets the Bay of Bengal branch in Punjab and Haryana to cause rains in the western Himalayas by first week of July.


INDIA
ADVANCING MONSOONS
Onset
TAJIKISTAN
AFGHANISTAN
PAKISTAN
CHINA
TIBET
NEPAL
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BANGLADESH
MYANMAR
SRI LANKA
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Srinagar
Chandigarh
Dehra Dun
Delhi
Lucknow
Jaipur
Patna
Ranchi
Kolkata
Imphal
Bhopal
Ahmadabad
Raipur
Nagpur
Bhubaneshwar
Mumbai
Hyderabad
Visakhapatnam
Bengaluru
Chennai
Thiruvananthapuram
ARABIAN SEA
BAY OF BENGAL
INDIAN OCEAN
LAKSHADWEEP (INDIA)
ANDAMAN & NICOBAR ISLANDS (INDIA)
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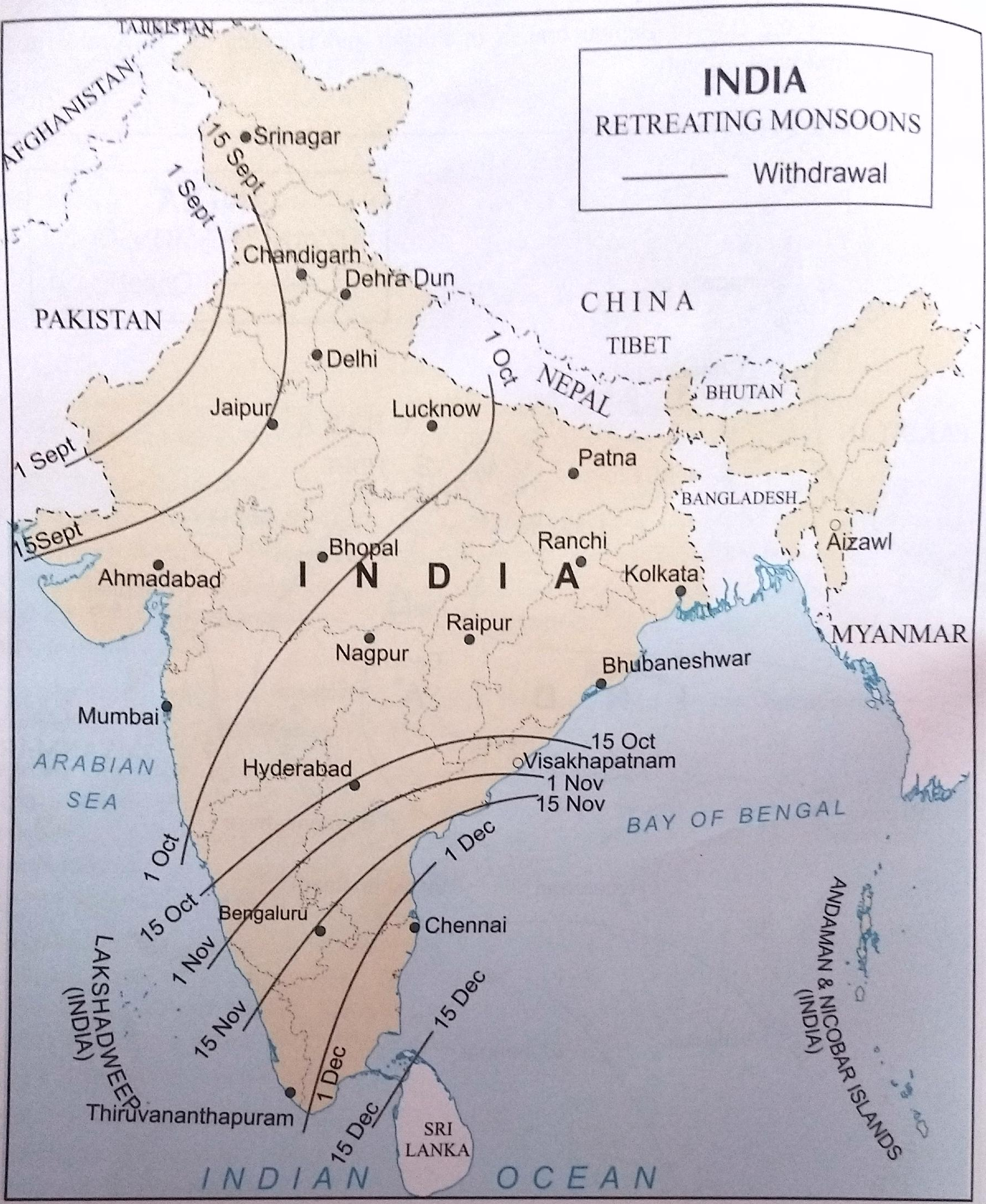
Advancing Monsoon


INDIA
RETREATING MONSOONS
Withdrawal
TAJIKISTAN
AFGHANISTAN
PAKISTAN
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INDIA
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Chandigarh
Dehra Dun
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Jaipur
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Ahmadabad
Bhopal
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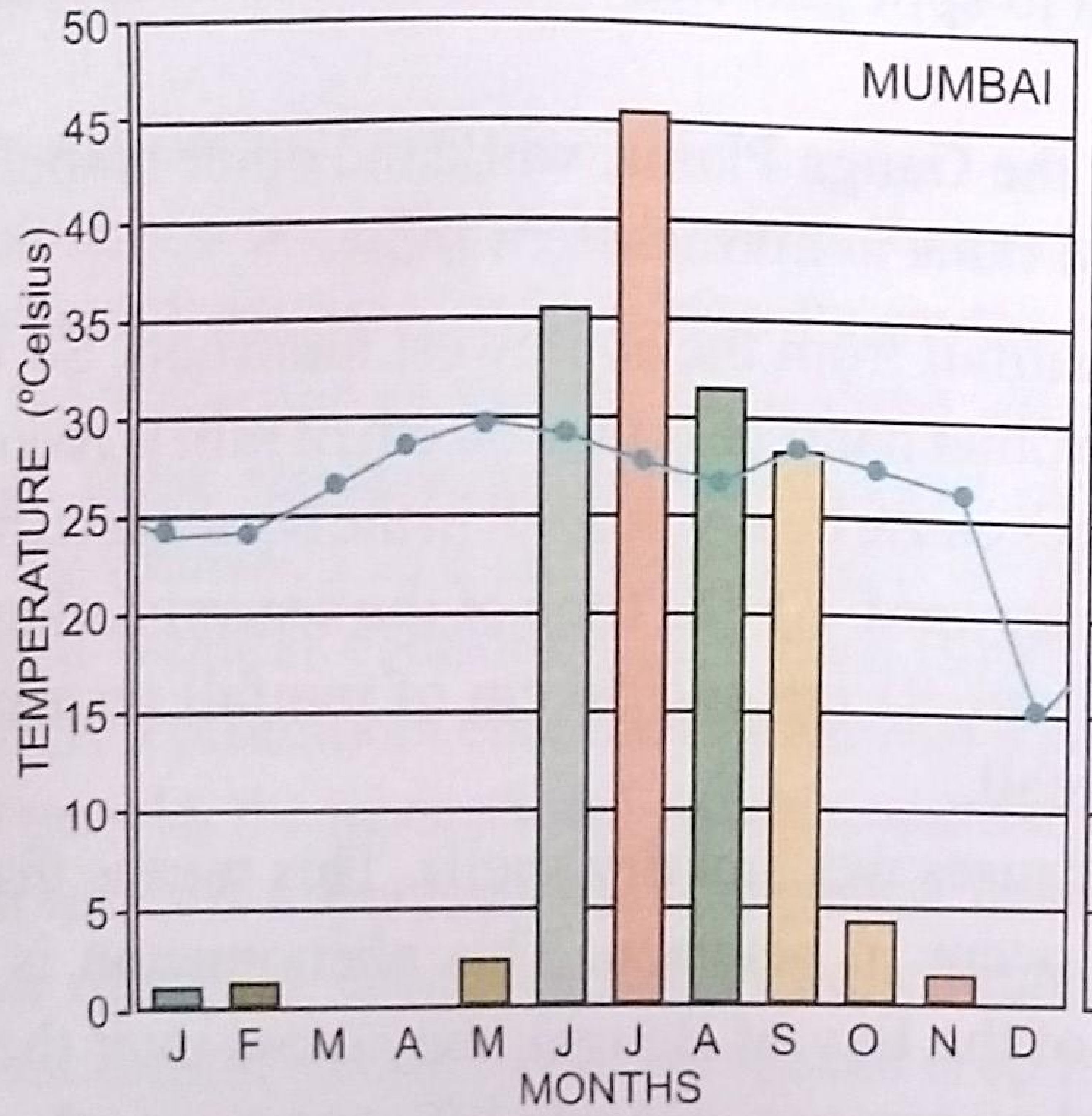
Retreating Monsoon

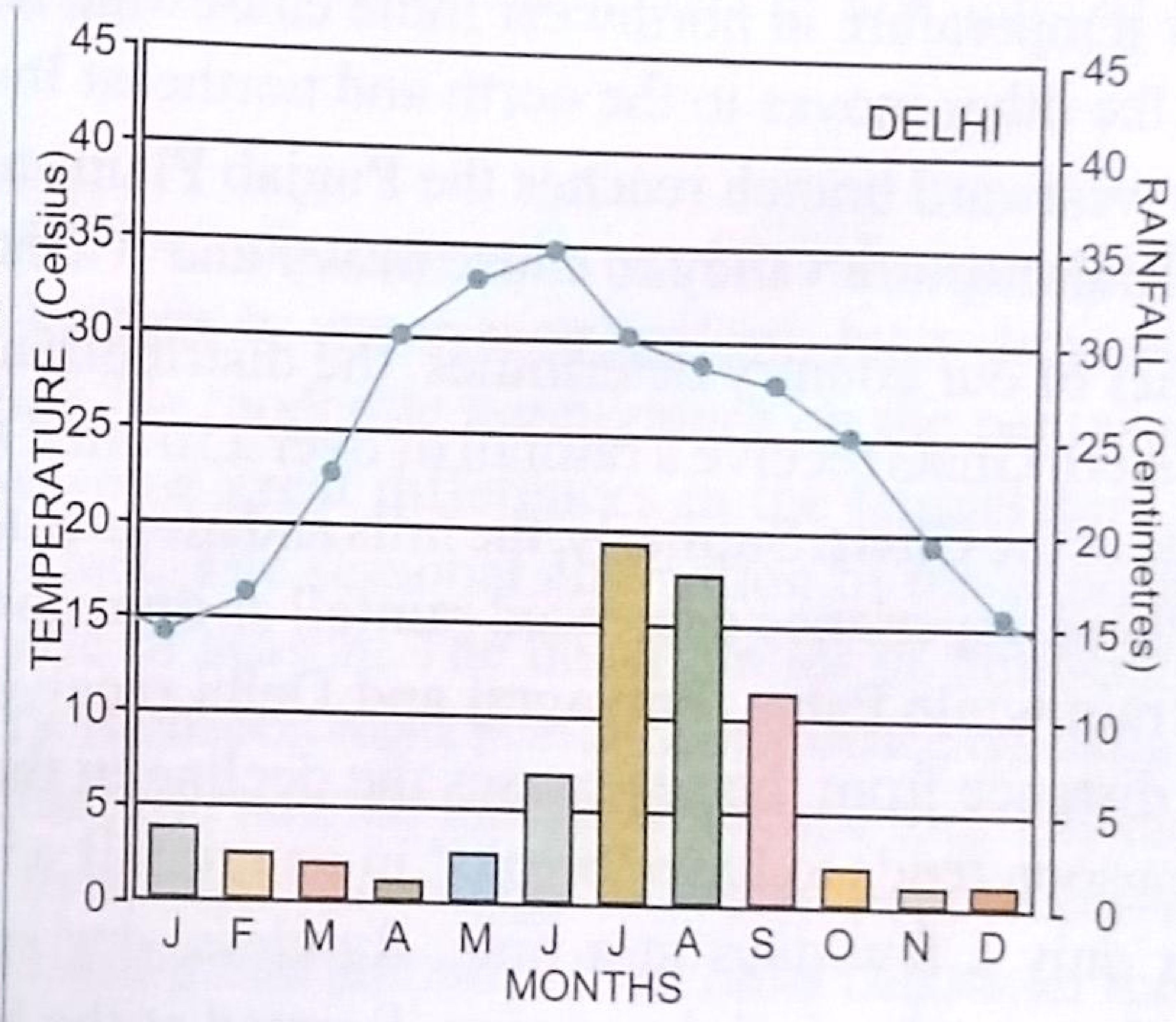
- This branch then enters the Ganga Plains to meet the Bay of Bengal branch.
- Another sub-branch hits the Saurashtra peninsula and the Kachchh by mid-June.

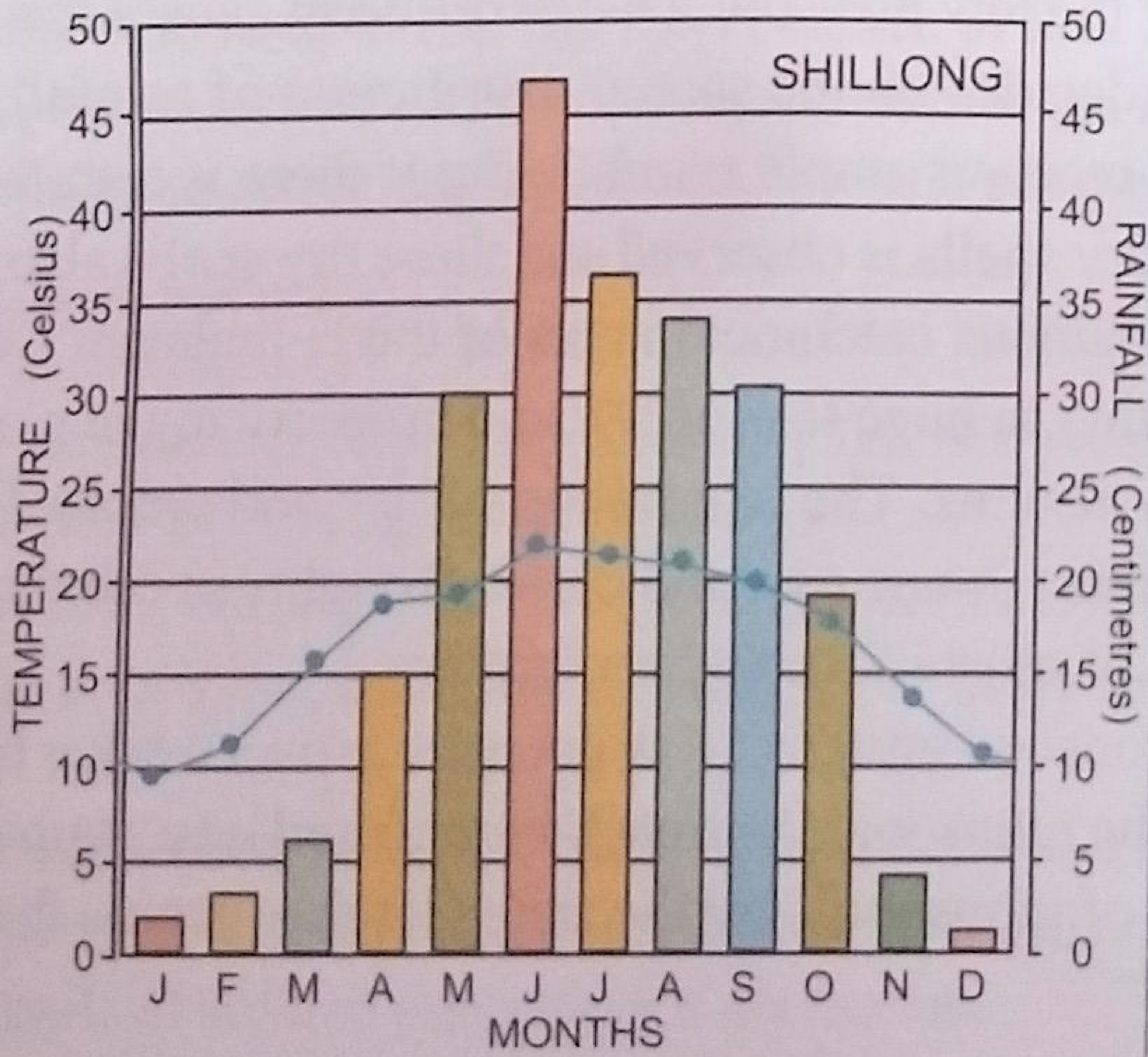
Local Winds and their Impacts

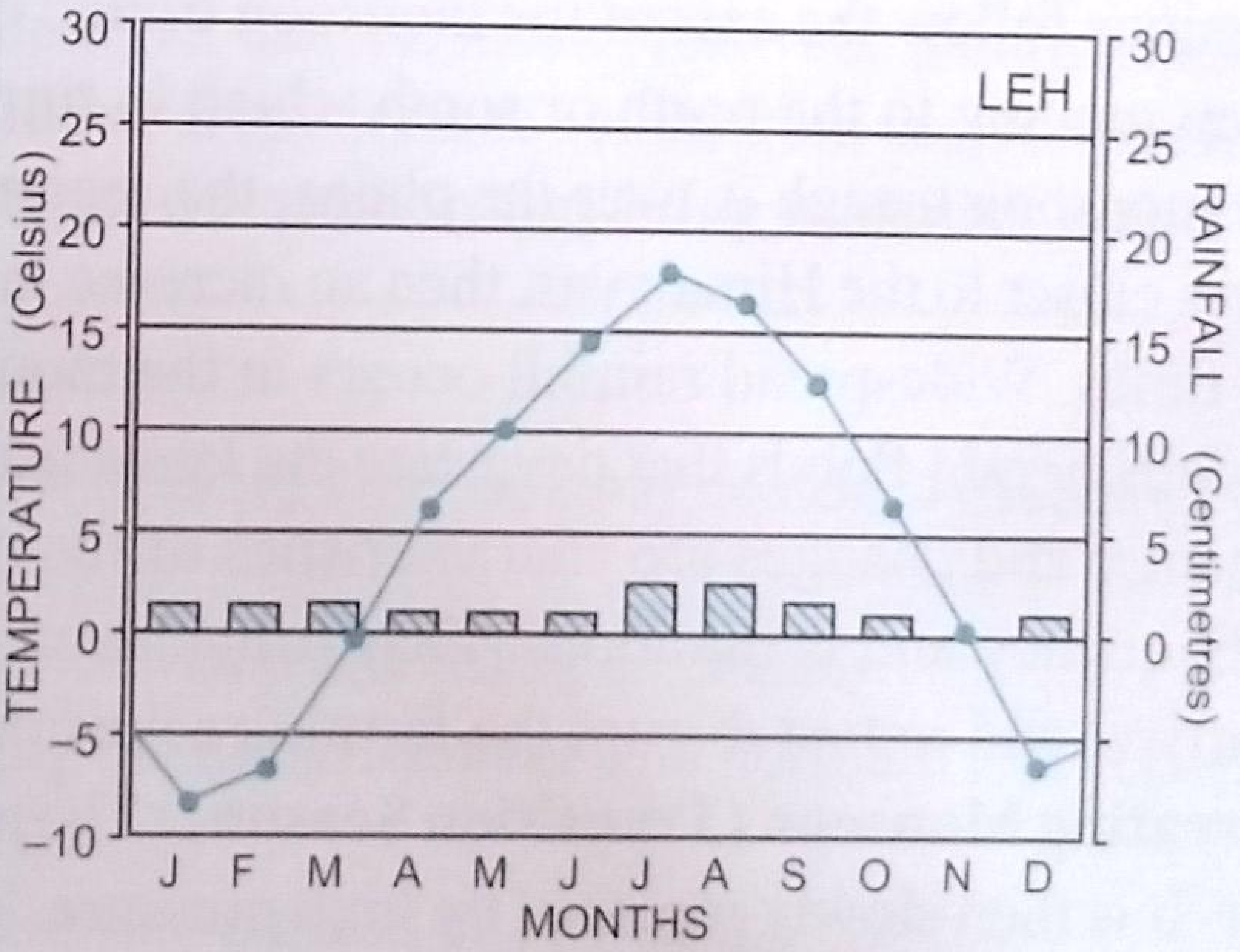
Local winds are winds that blow over a small area due to differences in temperature and air pressure caused by local features such as mountains, deserts, and water bodies. They are usually seasonal or occur at specific times of the day and can significantly affect the climate and daily life of a region. For example, the Loo is a hot, dry summer wind that blows over northern India and Pakistan, raising temperatures and sometimes causing heatstroke and crop damage. The Chinook wind, which blows down the eastern slopes of the Rocky Mountains in North America, is a warm, dry wind that rapidly melts snow and benefits agriculture but may cause discomfort such as headaches. In Europe, the Foehn wind produces similar warming effects in the Alps. Coastal areas experience sea breezes during the day and land breezes at night, which help moderate temperatures and sometimes bring rainfall. Overall, local winds can have both positive impacts, such as improving farming conditions and regulating temperature, and negative impacts, such as health problems, drought, and damage to crops.

Engage and Reflect









Study the graphs to answer the following questions:

(i) Which places have the highest and the lowest annual range of temperature?

(ii) Which place receives the highest annual rainfall?

(iii) Which place receives the lowest rainfall?

(iv) Identify the place having more rainfall in October – November.

Mawsynram, located on the crest of the southern range of Khasi Hills, receives the highest average annual rainfall in the world. Cherrapunji, located 16 km east of Mawsynram holds some other rainfall records.

Cherrapunji is one of the wettest places on earth and established a world record of an incredible 1032 inches of rain in 1861. It continues to record an average rainfall of 450 inches in the monsoon months of July to September.

Cherrapunji is surrounded by groves of orange and banana trees. This little town has a lively weekly market and is famous for its delicious orange-flavour honey.

The heaviest rainfall in the world is recorded in the nearby village of *Mawsynram* with an annual average of 479 inches. The excessive rainfall is due to a situation on an ampitheatre relief and on the windward side of the monsoon.

Characteristics of the Bay of Bengal Branch

- This branch of monsoon is naturally directed towards parts of southeast Bangladesh and coastal Myanmar to be deflected later.
- This deflection occurs due to the Arakan Hills along Myanmar's coast. Here a major part of this monsoon branch enters West Bengal and Bangladesh from south and southeast.
- Low temperature in northwest India causes the branch to split into two — one of which moves westward and the other moves to the north and northeast India.
- The westward branch reaches the Punjab Plains along the Ganga Plains, while the other branch moves up the Brahmaputra valley to cause heavy and widespread rains in northeastern India.

The relief of our country determines the distribution of rainfall from the southwest monsoon. So we observe that the Western Ghats receive a rainfall of over 250 cm. On the other hand, less than 50 cm of rain is recorded on the leeward side of the Ghats. Similarly, the hills and mountain ranges cause heavy rainfall in the northeastern states. The Northern Plains experience decreased rainfall as one moves westward. At this time of the season Kolkata receives 120 cm of rain while Patna, Prayagraj and Delhi receive 102 cm, 91 cm and 56 cm of rainfall respectively. The increasing distance from the sea causes the decline in the rainfall.

The monsoon tends to have 'breaks' in its rainfall which causes wet and dry spells. This means that monsoon rains occur only a few days at a time. Rainless, dry spells occur in between. This phenomenon is due to the frequent and strong tropical depression. Formed at the head of the Bay of Bengal, they cross over the mainland. The depressions follow the axis of the monsoon trough of the low pressure. Due to different causes the trough and its axis keep moving to the north or south which in turn decides on the spatial distribution of rainfall. When the axis of the monsoon trough is over the plains, the region receives ample rainfall. But if there is a shift in the axis and it moves closer to the Himalayas, then an increase in dry spells is observed and these dry spells also last longer than other times. Widespread rainfall occurs in the mountainous catchment areas of the Himalayan rivers. These heavy rainfalls herald floods that devastate the lands leading to huge loss of life and property in the plain regions.

Uncertainty and changes are characteristics of the monsoons. The alternation of dry and wet spells varies in intensity, frequency and in durations. They bring heavy rains in one part and cause droughts in other areas. Their irregular arrival and retreat disrupt the farming schedule of most of the Indian farmers.

4. Retreating Monsoon (Transition Season) : The monsoon trough of low pressure grows weaker by October-November. It is then slowly replaced by high pressure. The monsoon's outreach is rendered unsustainable and the gradual withdrawal begins. This is known as the 'retreat of monsoon'. By the time October begins the monsoons withdraw from the Northern Plains.

The period of transition from hot and rainy to dry and cold season occurs in the months of October-November. Clear skies and rising temperature are prominent marks of retreating monsoon. During the daytime the temperature remains high but nights are pleasant and cool. The land remains moist. High temperature and humidity cause the daytime weather to become rather oppressive. Known as **October Heat**, this phenomenon of early October is replaced in late October by low temperature especially in Northern India.

The northwestern India's low pressure conditions move to the Bay of Bengal area by early November. This shift is caused due to cyclonic depressions that occur with their origins over the Andaman Sea. Those depressions that are able to cross the eastern coasts of India cause heavy rains. The destructive tropical cyclones strike the thickly populated area in the Godavari, Krishna and Kaveri deltas. Loss of lives and properties are on a large scale. These cyclones may also arrive in Odisha, West Bengal and Bangladesh coasts. Most of the rainfall of the Coromandal Coast is a consequence of the depressions and cyclones.

Distribution of Precipitation

India receives an annual rainfall of over 400 cm over parts of western coast and northeastern India. However, in western Rajasthan and parts of Punjab, Haryana and Gujarat only 60 cm rain is recorded. Low rainfall is also recorded in the interiors of the Deccan Plateau in the east of the Sahyadris. Around Leh in Jammu and Kashmir we can once again observe low precipitation.

The rest of India gets moderate rainfall while snowfall is restricted to the Himalayan region.

Due to the vagaries of the monsoon, the annual rainfall is bound to vary from year to year. Regions of low rainfall have high variability. These regions include parts of Rajasthan, Gujarat and the leeward sides of Western Ghats. Thus, areas that receive high rainfall are prone to floods while areas having low rainfall suffer from droughts.

Monsoons – A Unifying Bond

The Himalayas are protective barriers that stop the cold winds from entering the subcontinent. This allows even the areas of northern India which lie on the same latitude to experience uniform high temperature. In the same way the influence of the sea from three sides makes for moderate temperature on the peninsular plateau. Even though these moderating influences exist there are some great differences in the temperature conditions. Even then the monsoon as a unifying bond is an obvious fact. The seasonal alternation of the wind systems and the associated weather conditions provide a rhythmic cycle of season. The uncertainties of rain and the uneven distribution are a prominent character of the monsoons. The monsoon has a profound influence on India's festivals, lifestyle of people, the agricultural routine, animal and plant life and the Indian landscape too. The monsoon is a unifying factor as it influences the occupation followed by a large percentage of Indian population–agriculture. The summer monsoon is vital to India's agriculture. The timing and amount of the rains can mean the difference between a successful harvest and widespread crop failure and famine. Other than this, monsoons have a profound impact on the culture of India. The very essence of folk life style, dances, music, festivals, paintings and literature come under the monsoon's influence. For centuries the Indians from north to south, from east to west have waited for the monsoon to arrive eagerly. But how much prosperity or devastation they bring is another matter to discuss.

KEY LEARNINGS

- India experiences four main seasons, i.e., Hot weather season, Cold weather season, Advancing monsoon season and Retreating monsoon season.
- Hot weather season is from March to May with rising temperature and falling air pressure.
- Loo are strong hot, dusty and dry winds that blow during the day in summer over northern and north–western part of India.
- Cold weather season sets in north India in mid-November and prevails till February.
- In the winter season, north–east trade winds prevail over the country, and blowing from land to sea, they cause most parts of India to experience a dry season.
- South–east trade winds cross the equator and blow in a south-westerly direction entering the Indian peninsula as the south west monsoon, bringing abundant moisture to the subcontinent.
- The months of October–November form a period of transition (Retreating monsoon season) from hot rainy season to dry winter conditions.
- The bulk of rainfall of the Coromandel Coast is derived from depression and cyclones.

Engage and Reflect

1. The coldest months in the northern parts of India are
   - (a) December and January
   - (b) March and April
   - (c) May and June
   - (d) August and September
2. What are mango showers?
3. In which months India experiences hot weather season.
4. During the advancing monsoon season, which part of India receives the highest rainfall?
5. State one main feature of the retreating monsoon.

CLIMATE CHANGE

Climate change is one of the most important environmental issues facing the world today. Its change the long-term change in Earth's average temperature and weather patterns, mainly caused by human activiti such as burning fossil fuels and deforestation, which increase greenhouse gases in the atmosphere.

Causes of Climate Change

1. Burning fossil fuels

Coal, oil, and natural gas burned for electricity, transport, and industry release greenhouse gases like carbo dioxide (CO_2). These gases trap heat in the atmosphere.

2. Deforestation

Trees absorb CO_2. When forests are cut down or burned, that stored carbon is released, and fewer tre remain to absorb future emissions.

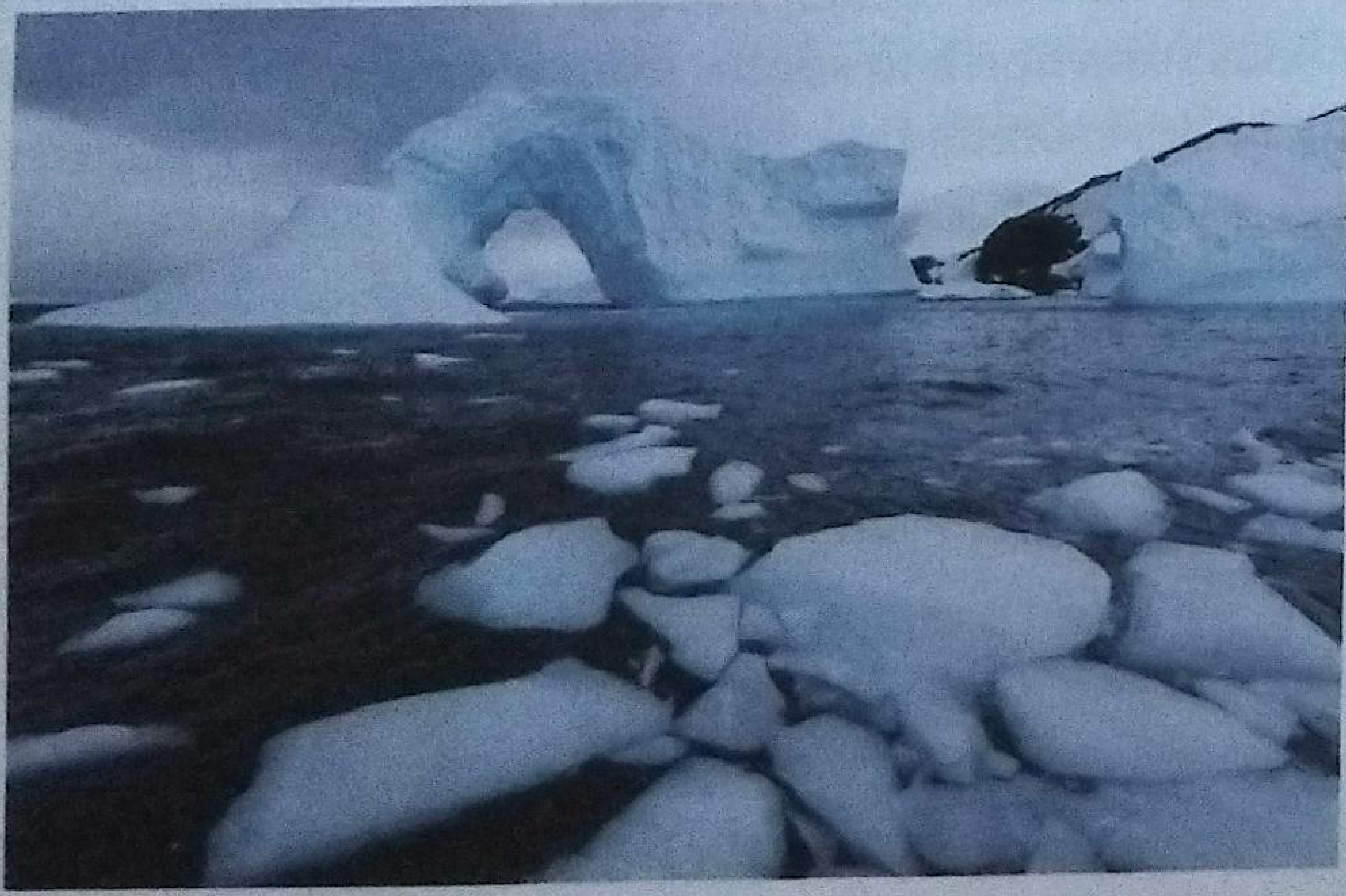
3. Industrial and agricultural activities

Factories emit greenhouse gases, and farming produces methane (from livestock) and nitrous oxide (fro fertilisers), both are very powerful heat-trapping gases.

4. Waste and overconsumption

Landfills emit methane, and producing goods at large scales increases energy use and emissions.

Effects of Climate Change



Melting of Ice Due to High Temperature

Droughts, Wildfires, storms, Floods, etc. are the consequences of climate Changes

1. Rising global temperatures

Average temperatures are increasing, leading to hotter days and more frequent heatwaves.

2. Melting ice and rising sea levels

Glaciers and polar ice caps are melting, causing sea levels to rise and threatening coastal cities and islands

3. More extreme weather

Climate change increases the intensity and frequency of storms, floods, droughts, and wildfires.

4. Harm to ecosystems and wildlife

Many plants and animals struggle to adapt quickly enough, leading to habitat loss and species extinction.

5. Impacts on humans

- Food and water shortages
- Health problems (heat stress, spread of diseases)
- Economic losses and climate-driven migration
- Thus we find that Climate change affects every part of life on Earth—nature, economies, and human health. The good news is that reducing emissions, protecting forests, and switching to renewable energy can slow its impacts.

Engage and Reflect

1. Which of the following is a major contributor to global warming?
(a) Increase in oxygen concentration
(b) Excessive greenhouse gases
(c) Decrease in atmospheric pressure
(d) Formation of clouds

2. The melting of glaciers and rising sea levels is mainly caused by:
(a) Deforestation and global warming
(b) Tidal waves
(c) Volcanic eruptions only
(d) Ozone layer depletion

KEY LEARNINGS

- Climate change is one of the most important environmental issues facing the world today.
- Average temperatures are increasing, leading to hotter days and more frequent heatwaves.
- Climate change increases the intensity and frequency of storms, floods, droughts, and wildfires.

FLOODS

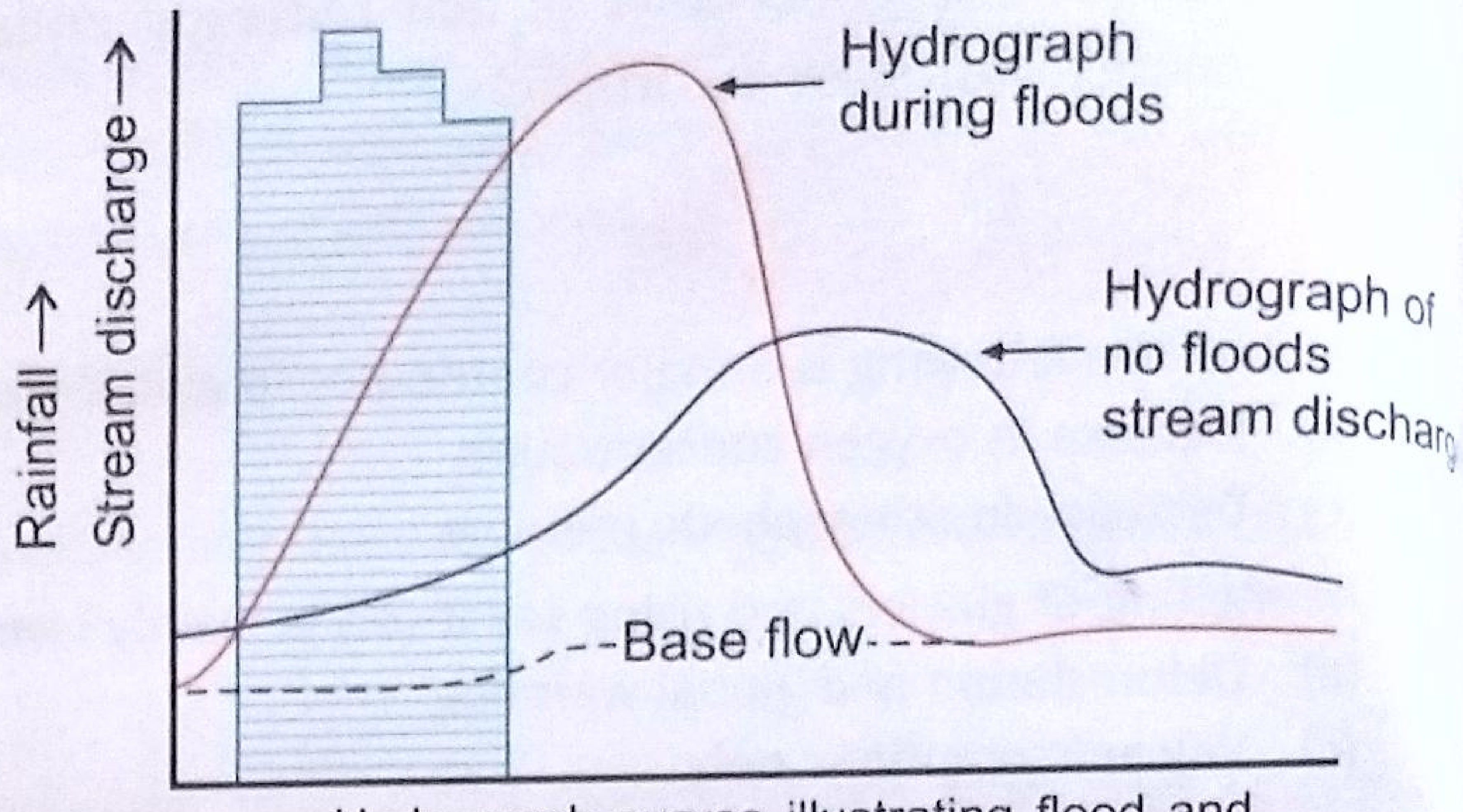
Floods are inundations of land with water caused by rains, rivers overflowing their banks, increase in reservoirs of water, winds, cyclones, tsunami, melting of glaciers and sea tides. Sometimes rivers breach or burst their banks. There may also be a dam burst or a thunderstorm or a tsunami may cause floods. Such a violent splash of water is called flash flood. The area drained by the waters of the river is called drainage basin. The flattish area alongside river channels covered by water during floods is called flood plain. The area in the upper course of the river which catches rainfall and feeds the river is called catchment area. A stream or a smaller river joining the main river is called a tributary. The point from where river begins its course is called origin. A point or a place where the river joins the sea is called its mouth. The high relief feature that separates two drainage basins is called water divide. The surface flow of water is called run off. These terms are very essential to learn in order to understand the anatomy of floods.

Onset Type

Floods are regarded as 'slow movements' in terms of their origin but not in terms of their happening. Most floods are preceded by heavy rainfall and melting of snow over several days. During this period even an ordinary person gets an idea of flooding. This period is known as 'probability' period. During the probability period prior to onset of flood there is persistence or intensity of rain and rapid flow or heavy runoff. The floodplains first receive the release of extra water that the channel cannot hold. Even the dam bursts regarded as major hazards have a probability period when a breach or a crack in the reservoir walls may have been noticed. Globally dissemination of statistical information collected from flood-prone streams and areas has revealed that there is a probability of occurring floods once during a ten year period. In between this peri there may be milder floods every two years. Even floods occurring on account of cyclones or tsunami, ar producing storm surges, have a certain probability period.

Warning

The Central Water Commission (CWC) has about 132 forecasting stations in the country which cove almost all the interstate flood prone rivers. Over 6000 forecasts are issued annually. In most cases the discharg of rivers is within permissible limits. The period of peak flow depicted in the given hydrograph may indica possible flooding above this level which also serves a warning on T.V. screen and computer networks fo flood control personnel in the area to which the hydrograph pertains.



Hydrograph curves illustrating flood and non-flood situation in an area.

The probability period discussed before allows sufficient time for media and administrative authorities to issue warnings and begin evacuation process much in advance. Almost all major river systems and canals have water level gauges fixed at strategic points which indicate the water level at a particular period of time. The Flood/Irrigation Departments of the Government or field units of Central Water Commission (CWC) use various other methods to forecast floods and issue warnings. They use hydrographs or charts to show lag-time between heavy rainfall and peak discharge as shown in the figure. [The interval between heavy rainfall and flooding is called lag-time in the present context.]

Vulnerability

- Settlements in low lying areas of flood plain (known as peneplain) at the mouth of the river or th stream or on steep slopes where rush of water may put the structures at risk.
- Houses built on stilts near the mouth of a river.
- Industries and multistoreyed housing projects in flood plains have in recent studies been found not onl vulnerable but are regarded as the cause of floods. It is because surfaced roads, drains, covered area parking lots prevent water from seeping underground. The hydrographs are also used to depict thes variations.

Typical Effects

- **Panic :** This is almost common to most hazards. Most persons having weak physique, old people children, pregnant mothers die more on account of panic.
- **Disease :** Floods mix-up wastes and waste water. In India most floods come during rainy season wher it is very warm. Decomposition of organic matter on a vast scale leads to spread of diseases such as epidemics, viral infections, malaria and diarrhoea.
- **Physical damage :** In India crops are raised in flood plains. They are still standing during rainy season when floods come. The sediments transported by floods cause the most damage to standing crops. Houses at risk, dam bursts on account of pressure, landslides, houses on stilts, animals and animal shelters all become victims of heavy rush of water during floods.
- **Soil erosion :** While in flood plains rivers generally do deposition work, severe floods cause heavy rush of water and consequently do the work of erosion. Even in areas of deposition soil characteristics are changed, especially due to non-degradable materials washed out by floods.

Main Mitigation Strategies : Non-Structural Mitigation

- **Mapping :** Most major rivers, their flood plains, their basins and water divides are now fully mapped. A wide-variety of computer data-base is also available. This information is often made use of by flood control personnel to good advantage.
- **Land-Use Control :** This will reduce the danger to life and property when water inundates the floodplains and the coastal areas. No major develop-ment should be permitted in areas which are subjected to flooding. Important facilities like hospitals should be located in safer and elevated areas.
- **Flood Forecasting and Warning :** Better facilities for forecasting and warning help in reducing the impact of floods.

Structural Mitigation

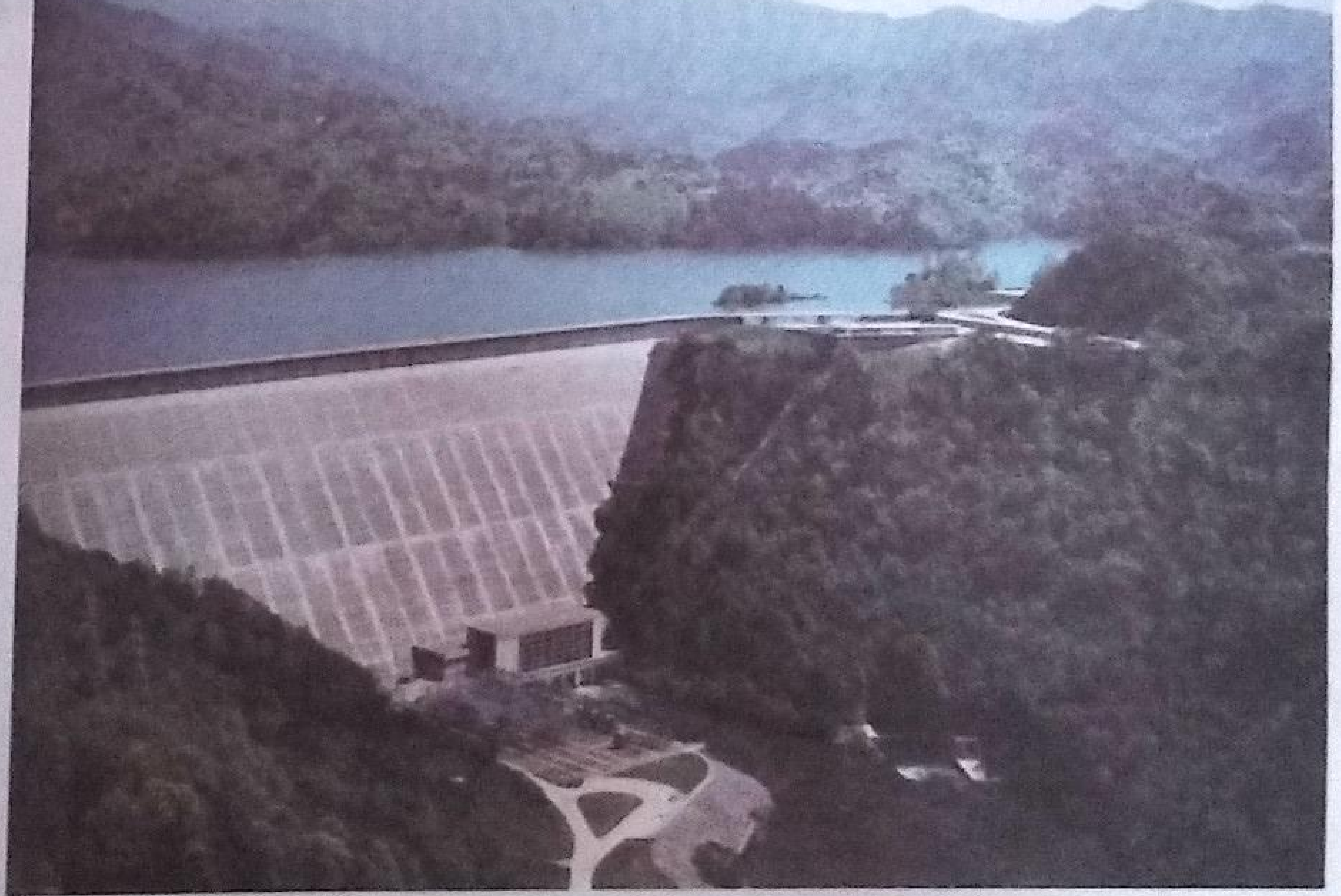
- **Straightening of channels :** In straight channels water flows speedily during floods. Meanders are open to floods. Artificial straightening is the main strategy to control floods.
- **Dikes and levees :** These are artificial embankments to divert the flood of water in particular direction.

Dikes in the Netherlands

Levees

- **Stream behaviour :** The behaviour of a stream river is an important aspect of study in hydrography or the science of charting rivers and other water bodies. Engineering structures are then built to divert the course of water where no major risk is posed. This also involves non-structural strategy of zoning and separate flood-tracts are earmarked.
- **Flood proofing :** These measures include the following :
  - (i) artificial reservoirs in flood prone area with sluice gates to divert flood water into a certain direction.
  - (ii) sand bags to block flow of water in a certain direction.

Irrigation ditches in Egypt siphon off floodwaters of the Nile river for use in agriculture.


A dam can create a reservoir to contain floodwater of a river. The reservoir can also become a source of hydroelectric power.

- **Constructing platforms and elevations :** During the Indus Valley Civilisation houses were construct on elevated platforms as a safety measure against floods. In many Nordic countries which are below th sea level such raised platforms are constructed even today. Settlements are founded on these platform

Engage and Reflect

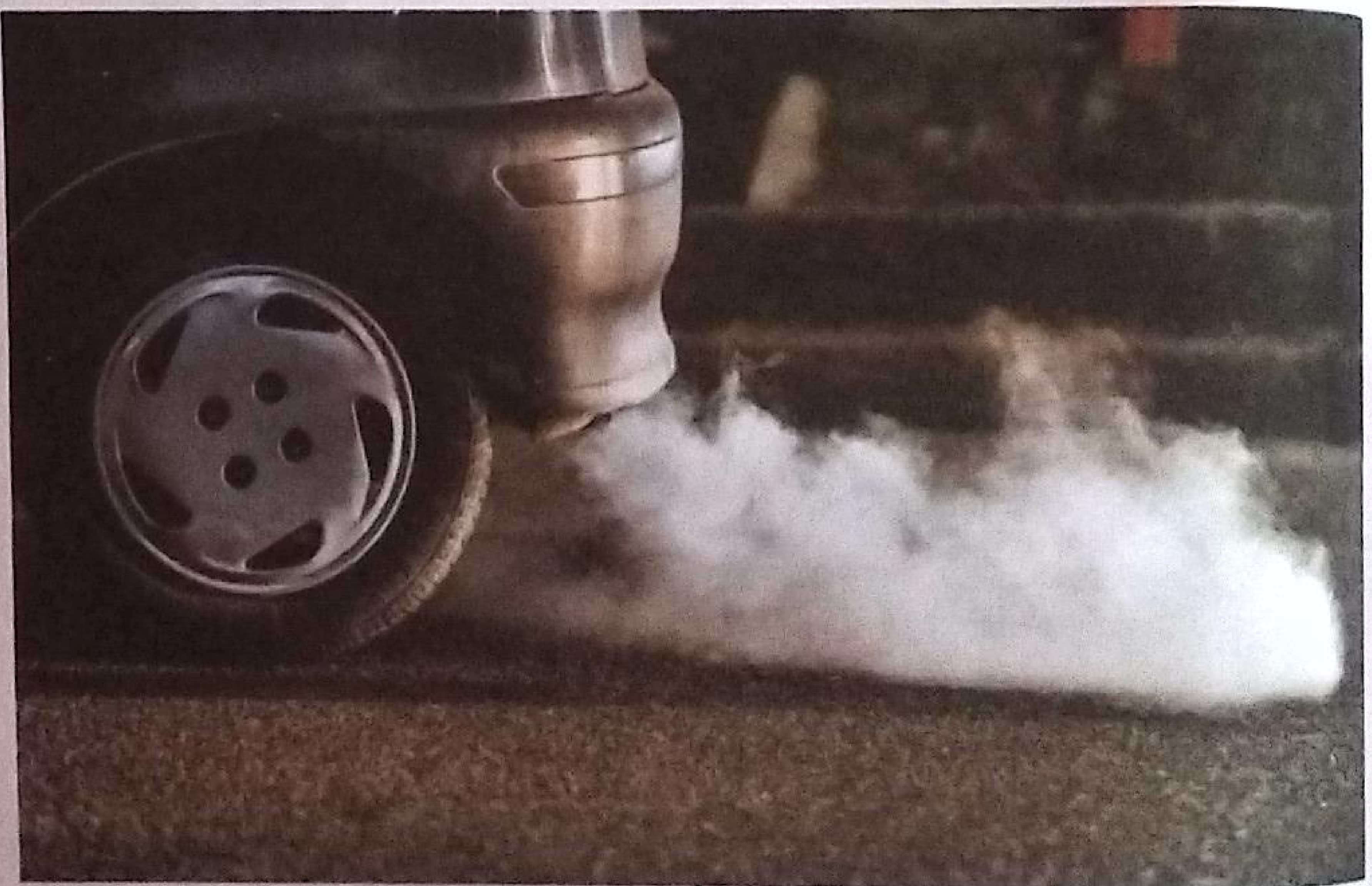
1. Floods in India are most commonly caused by:
   (a) Deforestation and heavy rainfall (b) Earthquakes
   (c) Cyclones in western India only (d) Cloud formation
2. Which of the following measures can reduce the risk of flooding?
   (a) Afforestation (b) Increasing urban concrete surfaces
   (c) Deforestation (d) Building on floodplains
3. Floods are less likely to occur in:
   (a) Coastal plains (b) Mountain valleys
   (c) Arid regions (d) River basins

KEY LEARNINGS

- Floods are regarded as 'slow movements' in terms of their origin but not in terms of their happening.
- Most persons having weak physique, old people, children, pregnant mothers die more on account of panic caused by floods.

CARBON FOOTPRINT

Human activities have greatly increased the amount of greenhouse gases in the atmosphere. One important way to understand this impact is through the concept of carbon footprint. Reducing our carbon footprint is essential to control climate change and protect the environment for future generations.



Pollution from vehicle

Meaning of Carbon Footprint

A carbon footprint is the total amount of greenhouse gases, mainly carbon dioxide (CO_2), released into the atmosphere due to human activities.

It is usually measured in tonnes of carbon dioxide equivalent (COe).

In simple words, a carbon footprint shows how much we contribute to air pollution and global warming through our daily actions.

Sources of Carbon Footprint

Carbon footprints are created from various activities at individual, community, and national levels.

Major sources include:

- Burning of fossil fuels (coal, petroleum, natural gas)
- Transportation (cars, buses, airplanes)

- Electricity generation in thermal power plants
- Industries and factories
- Deforestation
- Use of household appliances like air conditioners and refrigerators
- Agriculture and livestock farming

Factory Smoke Polluting the Air

Types of Carbon Footprint

Carbon footprint can be classified into two main types:

Direct Carbon Footprint

This includes emissions from activities we directly control, such as:

- Driving vehicles
- Burning fuels at home
- Using LPG or petrol

Indirect Carbon Footprint

This includes emissions produced during the manufacturing and transportation of goods and services we use, such as:

- Clothes
- Electronic items
- Food products

Effects of High Carbon Footprint

An increase in carbon footprint leads to serious environmental problems such as:

- Global warming
- Melting of glaciers and polar ice
- Increase in extreme weather events
- Health problems due to air pollution
- Climate change
- Rise in sea level
- Loss of biodiversity

Ways to Reduce Carbon Footprint

Reducing carbon footprint is a shared responsibility.

Steps individuals can take:

- Use public transport, cycling, or walking
- Save electricity and use energy-efficient appliances
- Switch to renewable energy sources
- Avoid unnecessary use of plastic
- Consume local and seasonal products
- Reduce, reuse, and recycle materials
- Plant more trees

Role of Students in Reducing Carbon Footprint

Students can play an important role in environmental protection by:

- Spreading awareness
- Practicing energy conservation at home
- Participating in tree plantation drives
- Supporting eco-friendly habits at home and school

Engage and Reflect

1. Why is carbon footprint considered harmful for human beings?
2. Mention the role of government in reducing the carbon footprint?

KEY LEARNINGS

- Human activities have greatly increased the amount of greenhouse gases in the atmosphere.
- An increase in carbon footprint leads to serious environmental problems such as climate change air pollution, and global warming:
- Reducing carbon footprint is a shared responsibility.

GLOSSARY

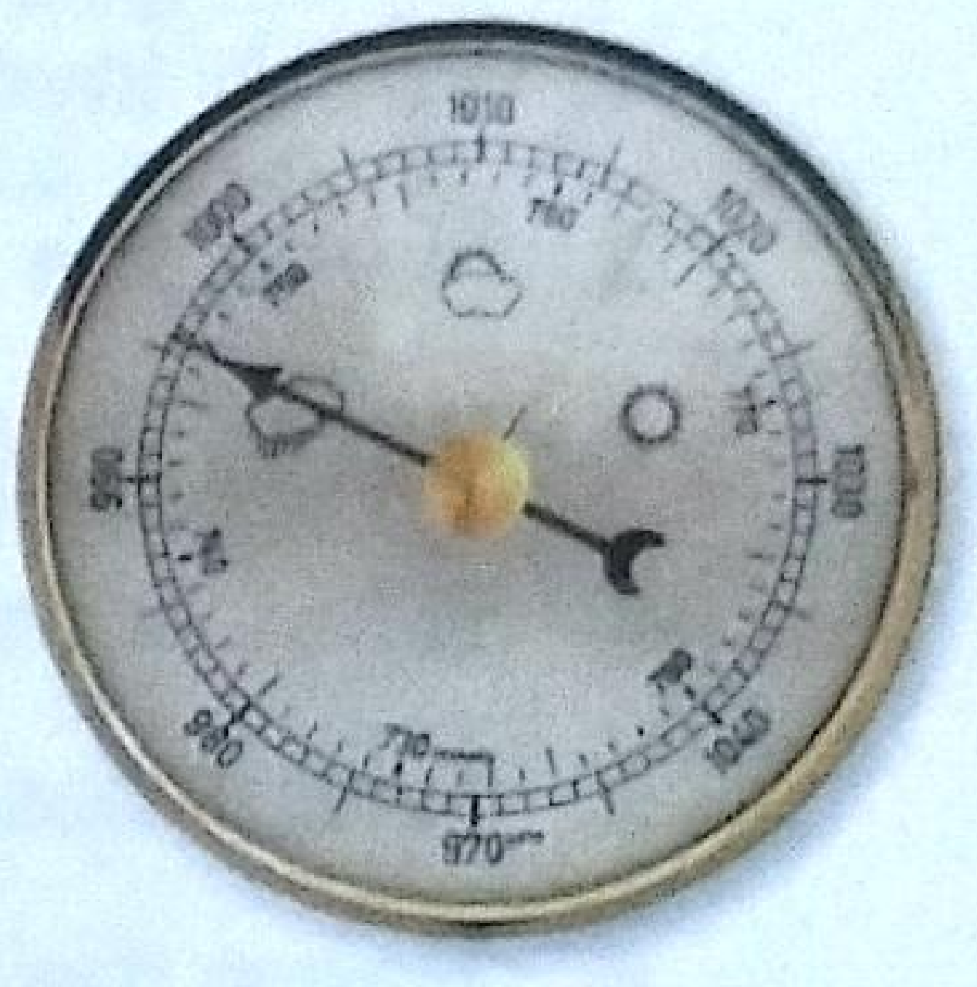
Atmosphere:	It is the layer of gases surrounding Earth, held by gravity, that protects life an regulates climate and weather.
Natural Vegetation	A plant population that has evolved naturally without the assistance of humans.
Solar Radiation	It is the energy emitted by the Sun in the form of light and heat that reaches Eart
Ultraviolet Radiation	It is a form of invisible electromagnetic energy from the Sun that can affect livin organisms and Earth's atmosphere.
Food Chain	It is a linear sequence of organisms through which energy and nutrients pass as on organism eats another.
Ecosystem	It is a community of living organisms interacting with each other and their physica environment.
Combustion	It is a chemical process in which a substance reacts with oxygen, releasing heat an light.
GPS	Global Positioning System is a satellite-based navigation system that provide location and time information anywhere on Earth.
Photosynthesis	It is the process by which green plants use sunlight, carbon dioxide, and water t produce food (glucose) and oxygen.
pH	It is a measure of how acidic or basic a substance is, on a scale from 0 to 14.
Marine life	It refers to all plants, animals, and other organisms that live in oceans, seas, and saltwater environments.
Condensation	It is the process by which water vapour in the air changes into liquid water.
Thunderstorm	It is a weather event characterised by heavy rain, lightning, thunder, and often strong winds.
Greenhouse gas	A greenhouse gas is a gas in the atmosphere that traps heat, contributing to the warming of Earth's surface.
Extinction	It refers to the permanent disappearance of a species from the Earth.
Deforestation	It is the large-scale clearing of forests, usually by humans, for agriculture development, or other activities.
Global Warming	It is the gradual increase in Earth's average temperature caused mainly by the buildup of greenhouse gases in the atmosphere.

Exercises

A. Multiple Choice Questions

1. Which of the following statements is/are true regarding Stratosphere?
   I. Its temperature increases with height due to absorption of ultraviolet rays.
   II. It contains the ozone layer.
   III. It is the coldest layer of the atmosphere.
   IV. It helps in radio communication by reflecting radio waves.
   (a) Only I (b) Only II
   (c) Both I and II (d) Both III and IV

2. Identify the given instrument.
   (a) Rain gauge (b) Thermometer
   (c) Barometer (d) Anemometer



3. Consider the statements given below and choose the correct answer.
   Statement I: Poor drainage systems cause flood.
   Statement II: Construction of dams, embankments and reservoirs can prevent flood.
   (a) Both statements are correct
   (b) Both statements are incorrect
   (c) Statement I is correct but Statement II is incorrect
   (d) Statement I is incorrect but Statement II is correct

4. Most parts of India receive rainfall during which of the following months?
   (a) December to February (b) March to May
   (c) June to September (d) October to November

5. In which of the following months does the Tamil Nadu coast get most of its rainfall?
   (a) December to February (b) March to May
   (c) June to September (d) October to November

6. Which of the following places have cooler climate even during summers?
   (a) Allahabad (b) Mumbai (c) Mussoorie (d) Amritsar

7. Due to which of the following factors does Pune receive much lesser rainfall as compared to Mumbai?
   (a) It is located on the leeward side of Western Ghats
   (b) It is located on windward side of Western Ghats
   (c) It is located on central India
   (d) It is located far from the sea

8. Match the following items given in column A with those in column B.

	Column A	Column B
I.	Annual rainfall above 400 cm	**A.** Hyderabad
II.	Annual rainfall between 100–200 cm	**B.** Jaisalmer
III.	Annual rainfall below 20 cm	**C.** Shillong
IV.	Annual rainfall between 60–100 cm	**D.** Nagpur

   (a) A-I, B-II, C-III, D-IV (b) A-III, B-I, C-II, D-IV
   (c) A-IV, B-III, C-II, D-I (d) A-IV, B-I, C-II, D-III

B. Fill in the blanks

1. A ________________ is the total amount of greenhouse gases, mainly carbon dioxide released into the atmosphere due to human activities.
2. GPS stands for ________________
3. The loo are strong hot and dry ________________
4. The ________________ are proactive barriers that stop the cold winds from Central Asia from entering th subcontinent.

C. Very Short Answer Type Questions

1. Which layer of the atmosphere contains the ozone layer?
2. Name the gas that makes up the highest percentage of the atmosphere.
3. Which element of weather is measured using a barometer?
4. What is the normal duration of the southwest monsoon in India?
5. Which season in India is known as the "hot weather season"?
6. Name the process by which water vapour turns into clouds.
7. What term is used for long-term average weather conditions of a place?
8. Which greenhouse gas is mainly released by burning fossil fuels?
9. What is the immediate cause of floods in most regions?
10. What does the term "carbon footprint" refer to?

D. Short Answer Type Questions

1. State any two differences between weather and climate.
2. Why is the troposphere important for human life?
3. Explain the role of nitrogen in the atmosphere.
4. How does altitude affect temperature?
5. Mention two characteristics of the retreating monsoon season in India.
6. Why do coastal areas experience moderate climate?
7. Give two human activities responsible for climate change.
8. Explain how deforestation contributes to floods.
9. State two impacts of global warming on India's climate.
10. Suggest two ways by which individuals can reduce the amount of carbon footprint.

E. Long Answer Type Questions

1. Describe the structure and composition of the atmosphere and explain how each layer supports life on Earth.
2. Explain the elements of weather and analyse how they collectively influence the climate of a region.
3. Describe the major seasons of India and explain the climatic conditions associated with each season.
4. Explain the mechanism of the southwest monsoon in India with suitable reasons for its importance.
5. "Monsoon is the lifeline of India." Justify this statement with examples.
6. Analyse the causes and consequences of climate change, highlighting its impact on weather patterns.
7. Explain the major causes of floods in India and suggest effective flood management measures.
8. Explain the concept of carbon footprint and examine its role in global climate change.
9. Suggest sustainable strategies at individual, national, and global levels to reduce climate change impacts.

F. Assertion-Reason Questions

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(c) (A) is correct but (R) is wrong
(d) (A) is wrong but (R) is correct

1. **Assertion (A):** Atmosphere is divided into three distinct layers.
   Reason (R): All weather phenomena like rain, clouds, storms, and fog occur in Troposphere.
2. **Assertion (A):** Wind is the horizontal movement of air from high pressure to low pressure areas.
   Reason (R): It is measured by an instrument called rain gauge.
3. **Assertion (A):** Climate change is caused by human activities such as burning fossil fuels and deforestation, which increase greenhouse gases in the atmosphere.
   Reason (R): It is one of the most important environmental issues facing the world today.
4. **Assertion (A):** Floods cause loss of life, property damage, and environmental destruction.
   Reason (R): Floods are among the most common destructive natural disasters in the world.

G. Case-Based Questions

Read the given text and answer the following quetions.

In 2023, a coastal city in India experienced unusually heavy rainfall over a short period, leading to widepread flooding. Meteorologists observed that the rainfall was associated with strong southwest monsoon winds originating from the Arabian Sea. Additionally, the city had experienced unusually high temperatures in the preceding months. Scientists suggest that climate change may have intensified the extreme weather.

1. Which layer of the atmosphere is primarily responsible for weather phenomena like the heavy rainfall described in the case study?
2. The unusually high temperatures before the monsoon could have contributed to the intensity of rainfall. Provide a valid reason to support this statement.
3. Name few human actions that could help reduce the frequency and impact of such floods in the future.

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Theme IV : Beginnings of Civilisation

4

The Earliest People: The Stone Age

KEY CONCEPTS

- The Stone Age
- The Mesolithic Period
- The Palaeolithic Period
- The Neolithic Period

Early man was a hunter-gatherer. It means that he moved from place to place in search of food. He depende on nature for all his needs. Early man was also a nomad. He travelled great distances to find food. He fished hunted for wild animals, and gathered berries, nuts, wild roots and fruits.

There were many reasons for his moving from place to place.

- If he stayed at one place for a long time all the available food would have been eaten up.
- Animals move from place to place in search of grass and water. Early man, who was a hunter, had follow their movements.
- Plants and trees bear fruits in different seasons. So, early man had to move in search of different fruit and other plant products.
- People, plants and animals need water to survive. All rivers are not perennial. People living on the bank of seasonal rivers had to go in search of water during the dry seasons.

It was not easy for early man to hunt. He needed special skills to hunt and gather food. He had to hav proper tools, a quick and alert mind, and knowledge of the animals he hunted.

To gather food, he had to know which food to gather, which food to eat, and the knowledge of the seaso when he could gather a particular fruit or food. In short, he needed skills and knowledge.

Early man initially used tools such as sticks to dig up wild roots. Gradually, he started making tools out stone. This led to the beginning of the Stone Age.

The Stone Age

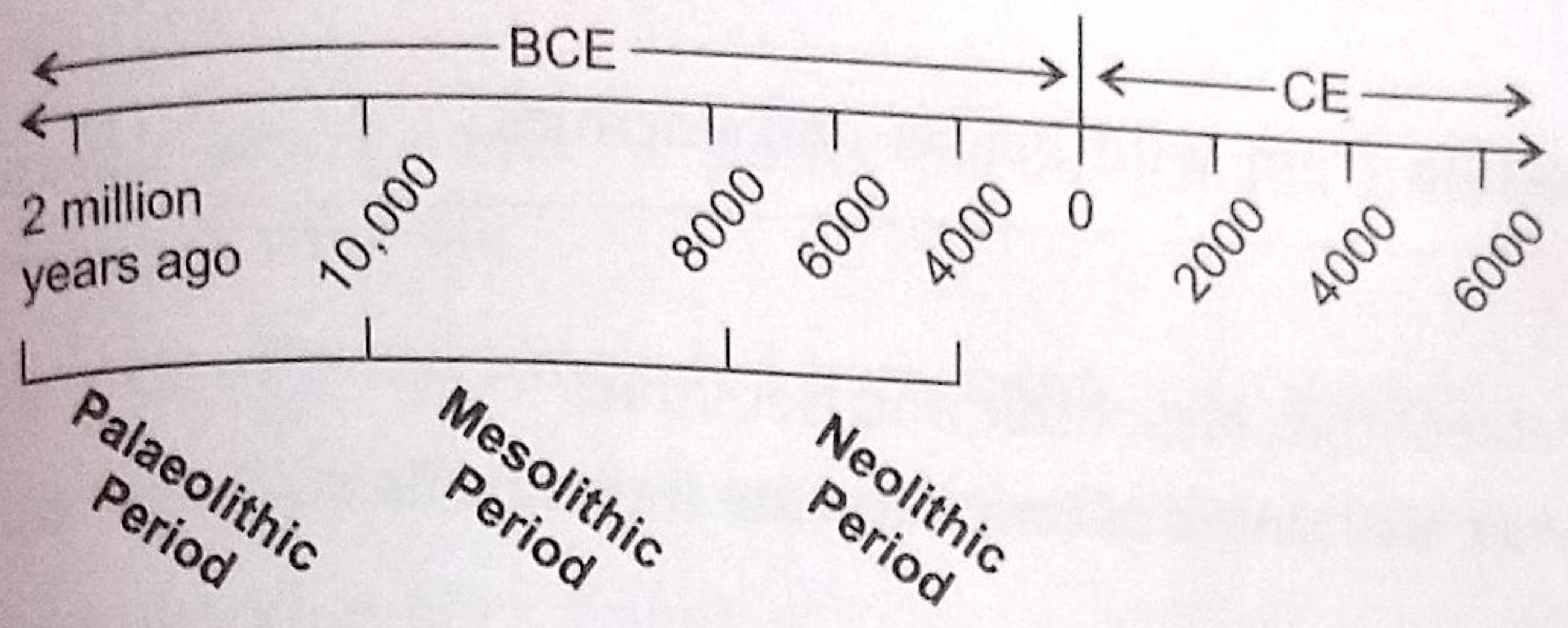
The Stone Age is divided into three periods :

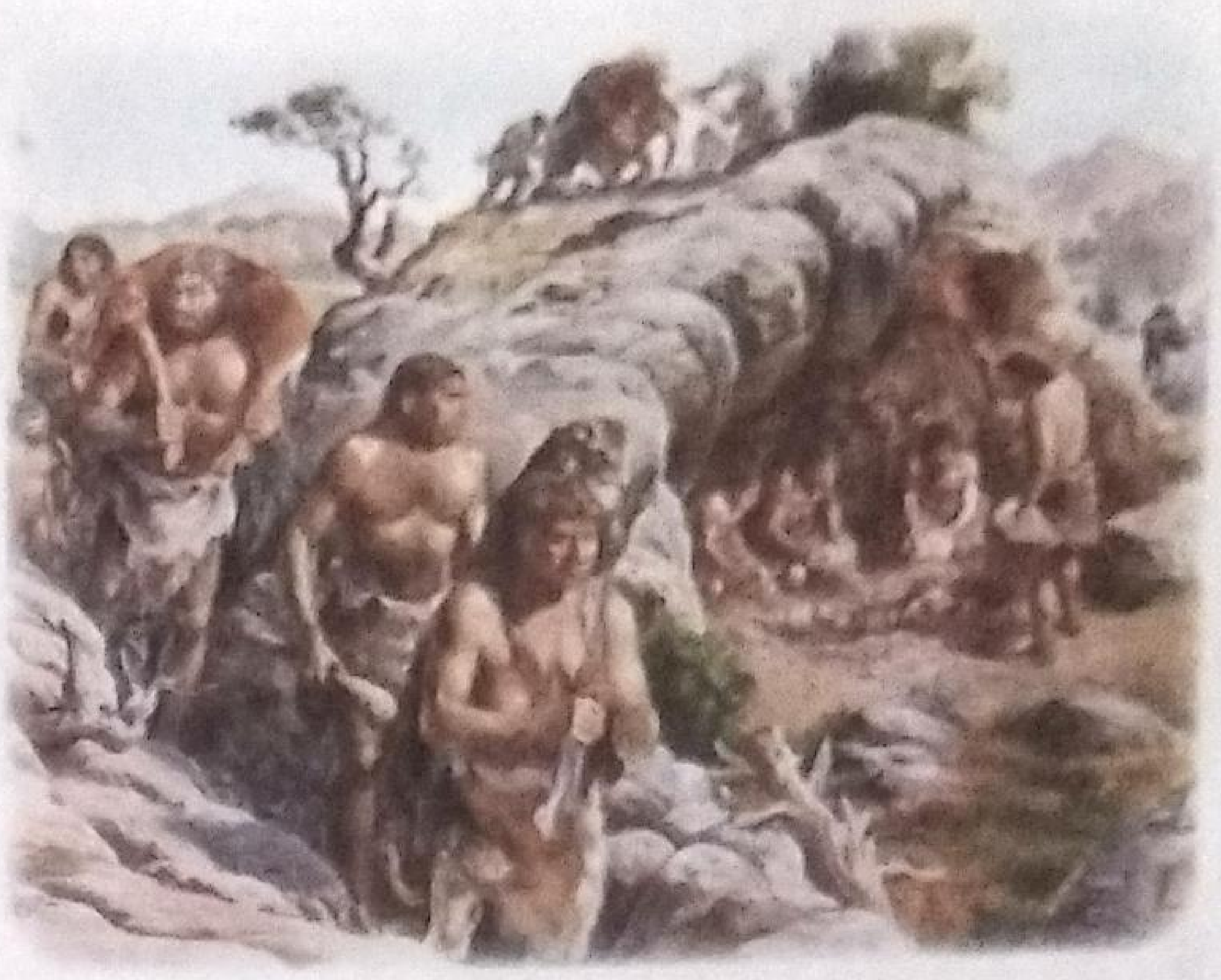
- Palaeolithic Period
- Mesolithic Period
- Neolithic Period

Palaeolithic Period: The Palaeolithic period began about two million years ago and lasted till about 10,000 BCE.

Mesolithic Period: The Mesolithic period lasted from 10,000 BCE till 8000 BCE.

Neolithic Period: The Neolithic period began around 8000 BCE and lasted till about 4000 BCE.

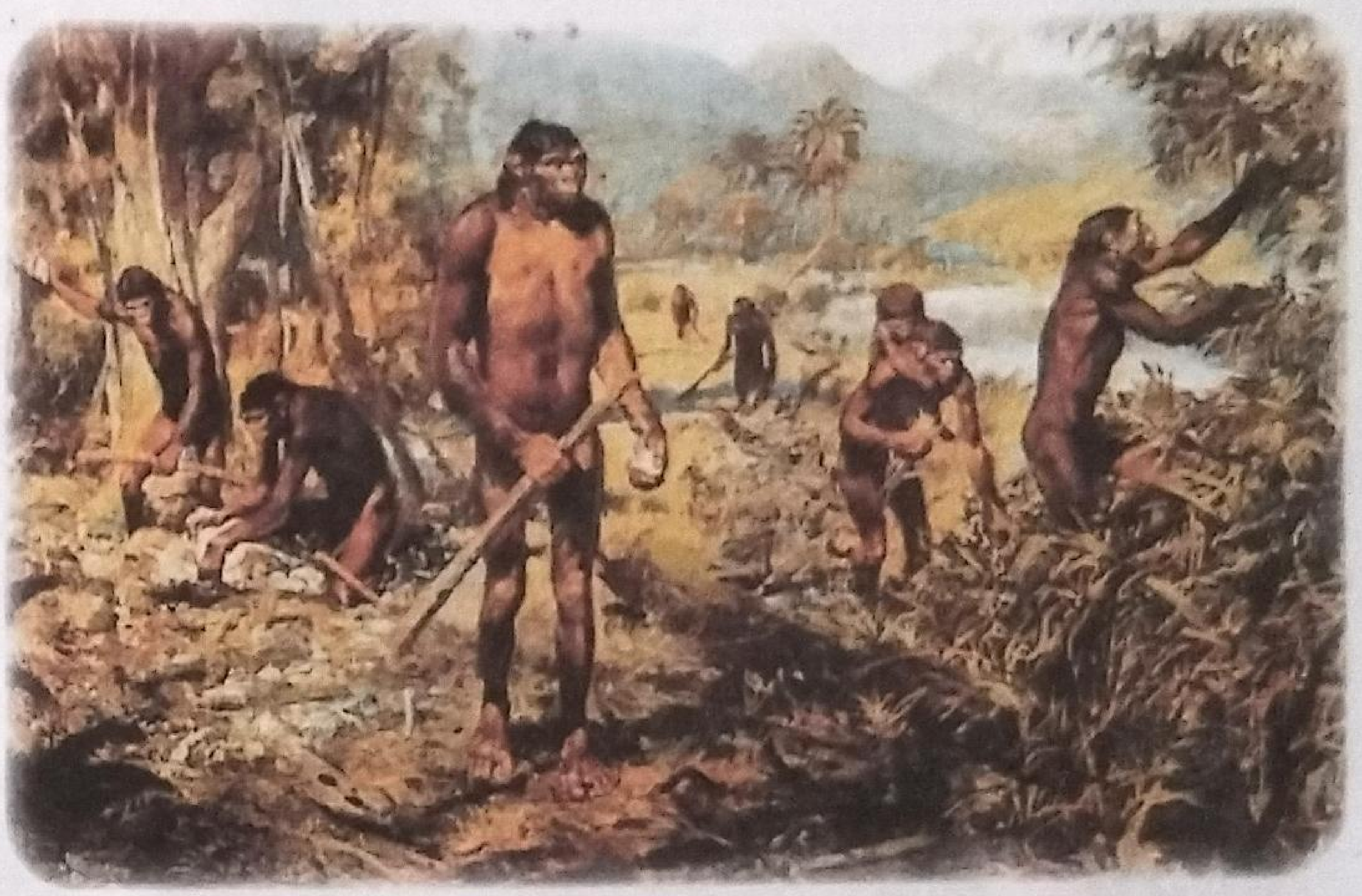




The Early man

THE PALAEOLITHIC PERIOD

The Palaeolithic period or the 'Old Stone Age' roughly began about two million years ago. During this period, man hunted and gathered food. He moved from place to place in search of food and wild animals. He ate whatever he could find. He did not wear anything in summers. In winters he covered himself with animal skins and leaves to keep himself warm. As he was a wanderer he moved in search of food from place to place. He had no home. At night he slept on trees or hid in caves.



Early man hunting and gathering food

The Palaeolithic Period is further subdivided into the Lower Palaeolithic period, the Middle Palaeolithic period, and the Upper Palaeolithic period.

Lower Palaeolithic Period

During this period, most of the Earth's surface was covered with thick sheets of ice. The climate was very cold. This period was also called the 'Ice Age' or 'Pleistocene Period'. Hand axes made of stone were used by early man during this age.

Middle Palaeolithic Period

The tools used during the Middle Palaeolithic Period were scrapers and borers made of stone flakes. Something like needles were used to sew furs and skins for body coverings.

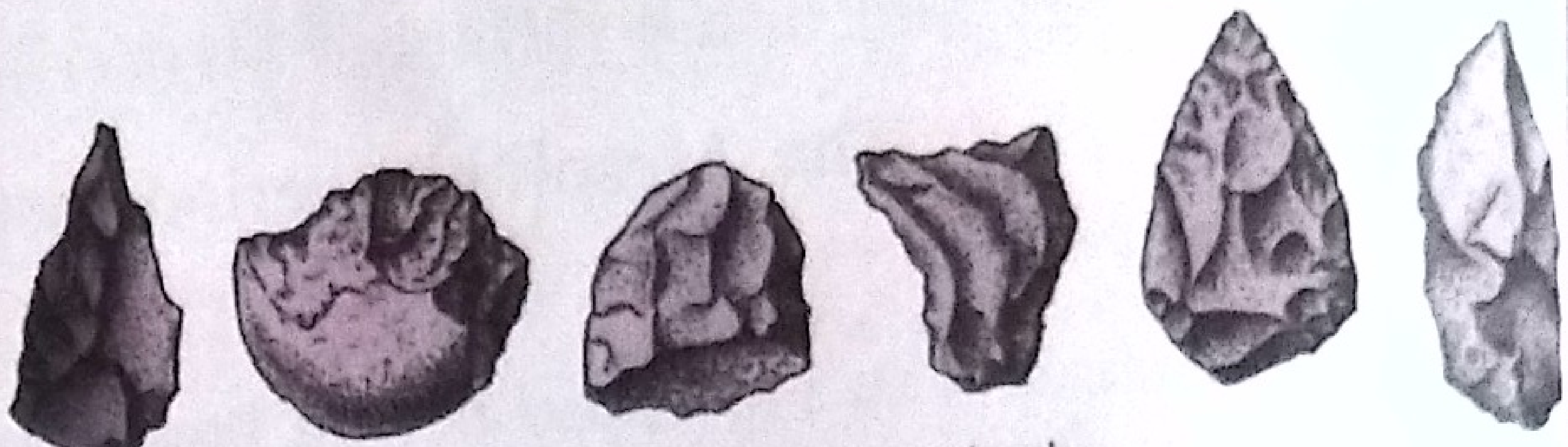
Upper Palaeolithic Period

During the Upper Palaeolithic Period, the climate became slightly warmer. Tools such as flint, blades and projectile points were used for hunting and skinning wild animals.

Use of Tools

Tools were used by early man for different purposes.

- They were used as weapons for hunting wild animals.
- They were used for shaping or cutting materials.
- They were used for digging the ground for cutting edible roots.
- They provided a sense of security and protection from wild beasts and enemies.



Old Stone Age tools

KEY LEARNINGS

- The stone Age is divided into three periods — Palaeolithic, Mesolithic and Neolithic.
- Early man (Old Stone Age) was a hunter – gatherer. He hunted animals and ate their raw flesh.
- He used crude stone tools.
- He was a wanderer who moved from place to place in search of food.

MESOLITHIC PERIOD

Mesolithic Period or the Middle Stone Age was the period in history that existed between the Palaeolithic Period and the Neolithic Period. Mesolithic People used tools made of bones, antler and wood for hunting, fishing and gathering food.

Later, they used tools formed from chips like blades, points, borers and scrapers known as microliths.

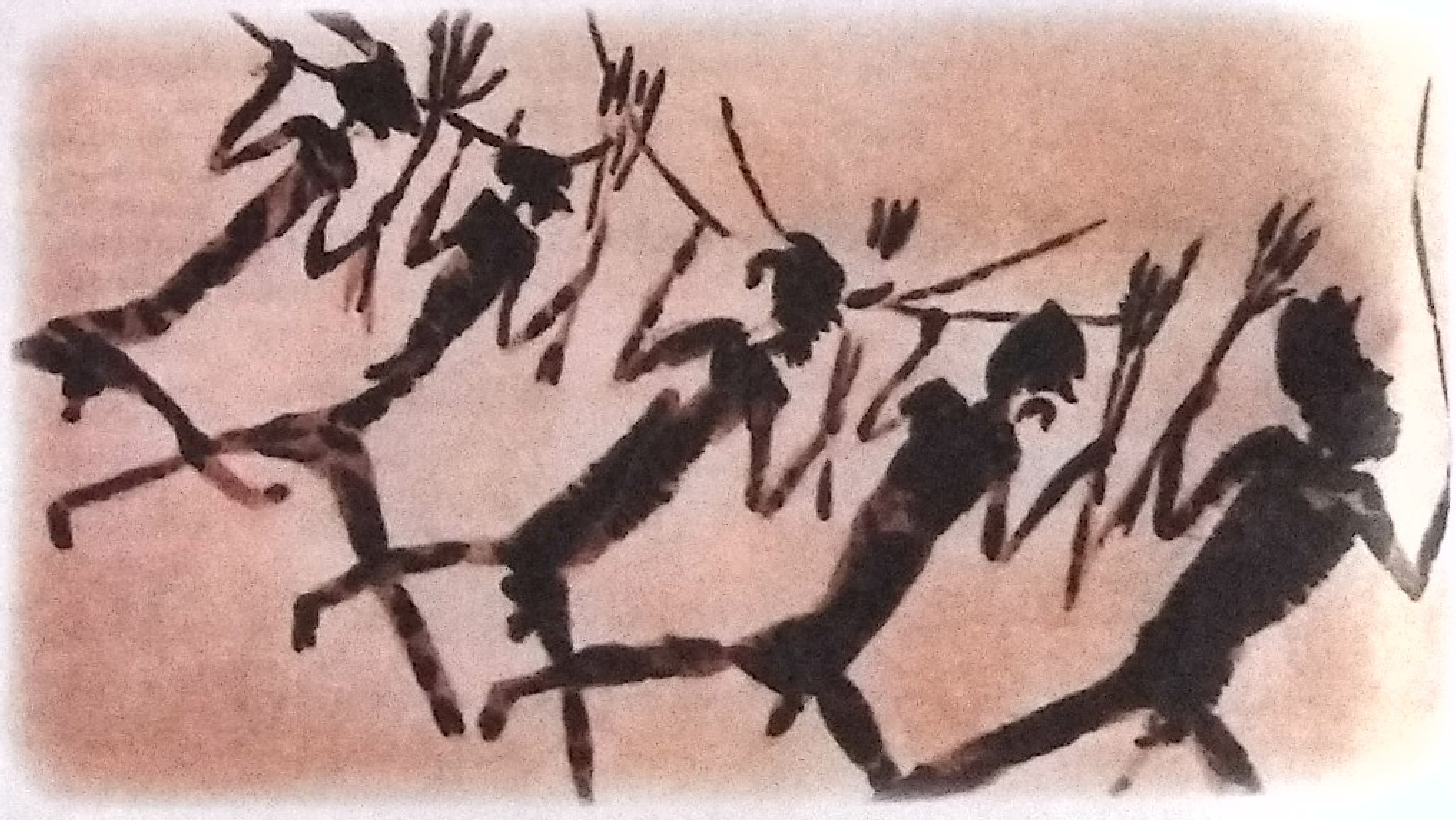
Mesolithic tools – Microliths

DID YOU KNOW?

Several human habitats dating back to the Stone Age have been discovered in different parts of the earth:

- A tent-like structure was found inside a cave near Nice, France.
- Many huts made of bones were found in Eastern Europe and Siberia.
- Megalithic tombs built during the Neolithic Age have been discovered all across Europe and Asia.

The people living during the Mesolithic Period were hunter-gatherers. Gradually, towards the end of this period, they moved on from being food gatherers to food growers. They experimented with seeds by dropping them on the ground and seeing them grow. They realised that by growing plants they received food in sufficient quantity. They made attempts to domesticate animals like goats, sheep and cattle which provided them with milk and food.

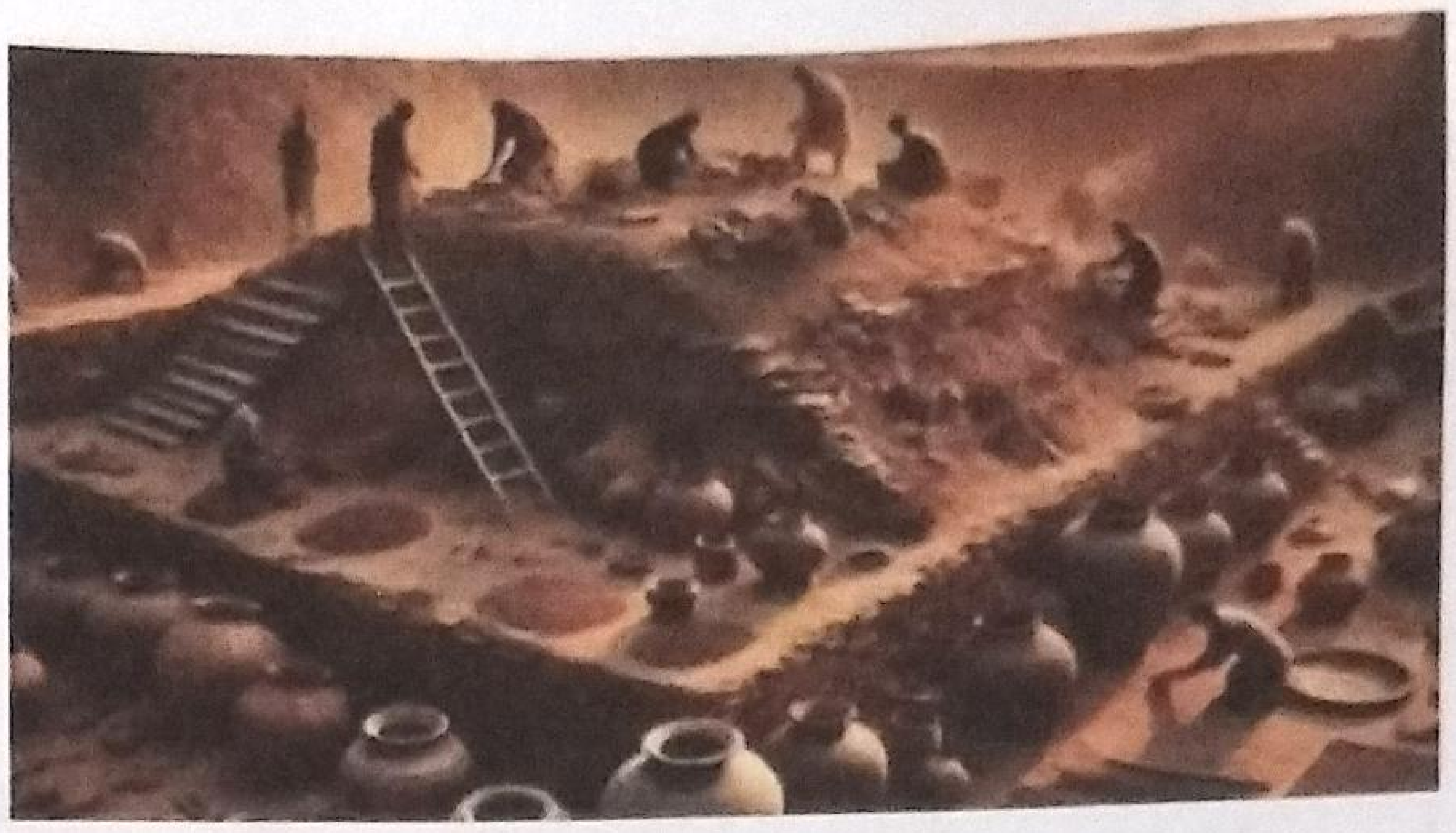


Cave paintings from the Mesolithic Period

Mesolithic sites

Mesolithic sites in India are spread across various regions, with notable examples including Bhimbetka, Adamgarh, Panchmarhi (Madhya Pradesh), Bagor and Tilwara (Rajasthan) and Langhnaj (Gujarat).

Tilwara



Tilwara Mesolithic Site

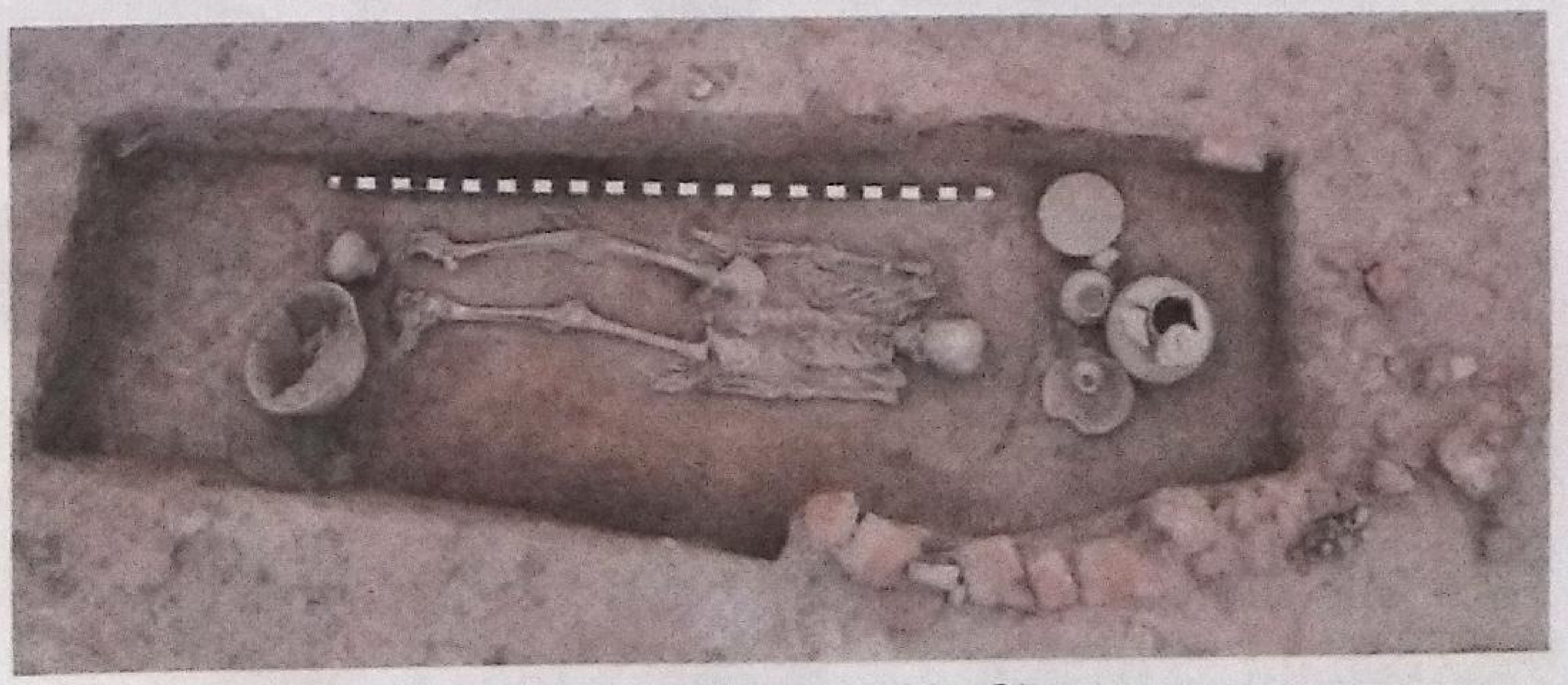
- Westernmost Mesolithic site in India.
- It has two phases – The first phase is mesolithic and is characterised by the presence of Microliths (small polished stones). The second phase has yielded wheel-made pottery, some pieces of iron, glass beads and microliths.
- Circular arrangement of stones on the ground indicate habitation structure.
- The diet of people included both meat and vegetable food.
- Fire hearths, and charred bones indicate the settlement of Mesolithic culture.
- Stone working sites found.

Bagor (the largest mesolithic site of India)

Bagor Mesolithic Site

- Located in Bhilwara district of Eastern Rajasthan, near the Kothari river.
- One of the best documented microlithic sites.
- Three occupational levels: Mesolithic, Chalcolithic and evidence of iron.
- Microliths made of locally available chert and quartz were found alongwith a large number of geometric microliths such as triangles and trapezes.
- House floors paved with stone slabs were found.
- Stone-paved areas with a large number of animal bones found.
- Animal bones of domesticated animals such as sheep, goats, cattle have been found.
- Important discoveries include ring stones (used as hammer stones to make microliths, and rubbing stones (for grinding food).

Langhnaj



Langhnaj Mesolithic Site

- Situated in Mehsana district, Gujarat.
- It is the most extensively studied site in Gujarat.
- Important discoveries were – miroliths, human burials, bones of wild animals and some potsherds.
- 14 human skeletons with cut marks on fore head were found.
- A symbiotic relationship with Harappan urban culture was found. Honey and hunted meat were sent to Harappan centres.

Engage and Reflect

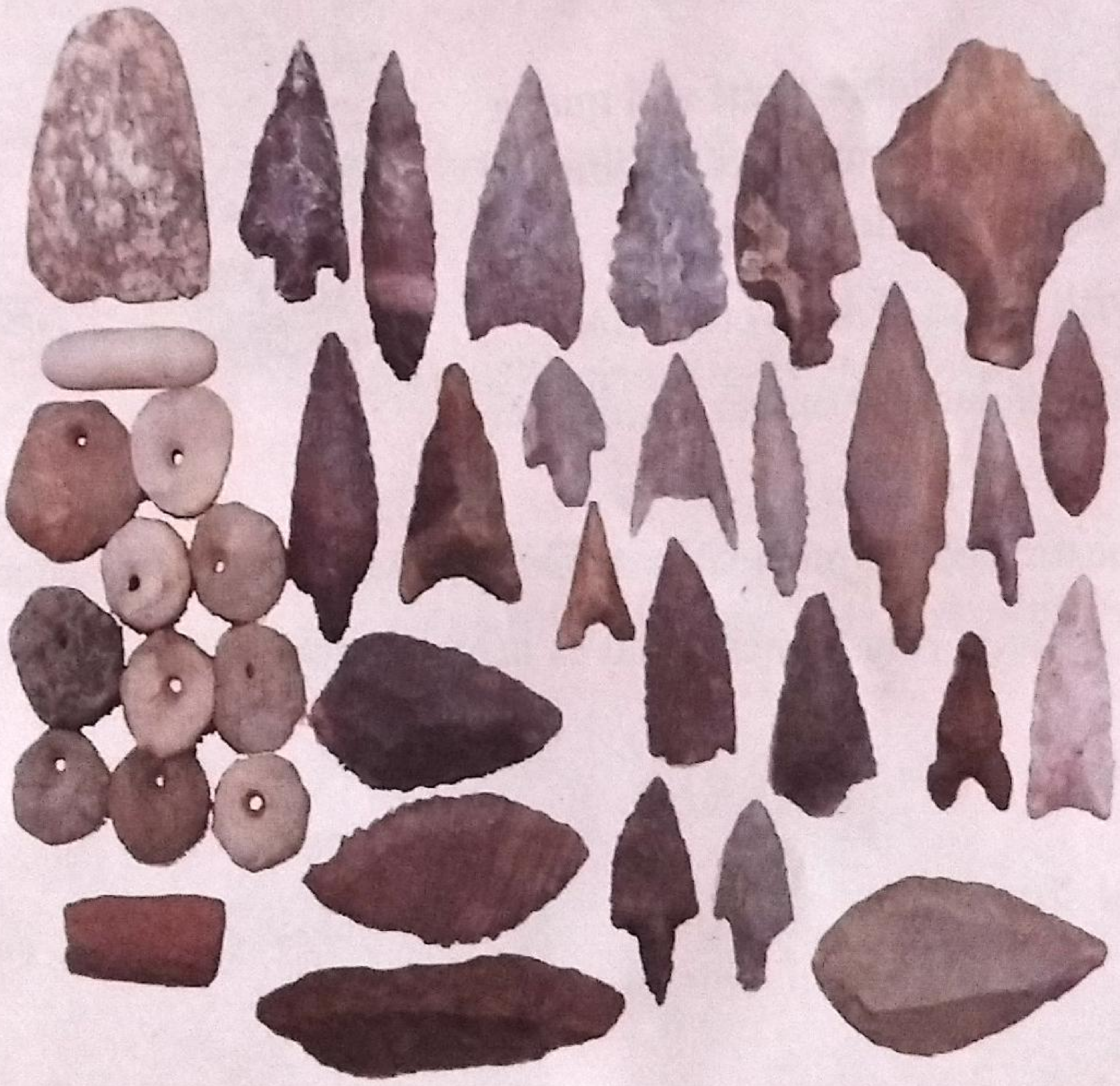
- Differentiate between tools of Palaeolithic and Mesolithic Age
- Why were Microliths called so?

KEY LEARNINGS

- Mesolithic period (Middle Stone Age) was a transition period between Palaeolithic and Neolithic periods.
- Mesolithic people used small polished stone tools, which were sharp and pointed, called microliths.
- Notable examples of Mesolithic sites in India are Bhimbetak, Adamgarh and Panchamarhi (M.P.) Bagor and Tilwara (Rajasthan) and Langhnaj (Gujarat).

NEOLITHIC PERIOD

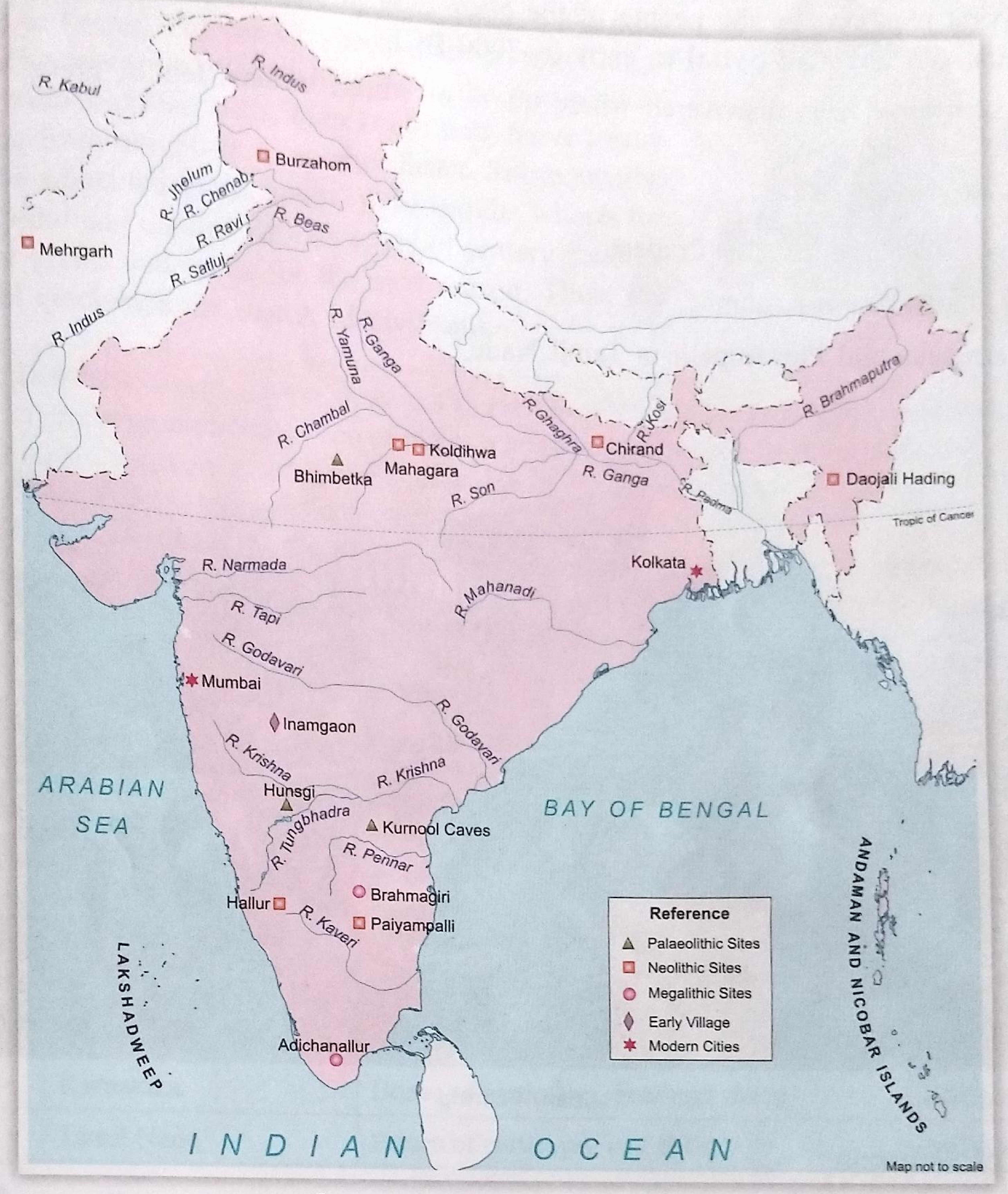
The Neolithic Period began around 8000 BCE and lasted till about 4000 BCE. The Neolithic people learnt make more polished tools. One of the major developments of this period was the adoption of agriculture. The moved to larger settlements and realised the importance of domestic animals like dogs, sheep and cattle. The used them as means of transport and for providing them with milk and meat.



Neolithic tools

The Neolithic Revolution

The Neolithic Revolution (8,000 – 4000 BCE) was a foundational shift from nomadic hunting and gathering to settled agriculture. It featured the domestication of plants and animals, permanent settlements, use of polished stone tools, pottery, population growth and societal complexity. Humans began cultivating crops such as wheat, barley, rice and domesticating animals such as sheep, goats and cattle for food, labour, and resources like milk and wool. Instead of migrating, people established permanent villages with improved housing. The period is marked by the use of polished stone tools (sickles, axes), wearing of textiles, and the development of pottery for storing food.


R. Kabul
R. Indus
Burzahom
R. Jhelum
R. Chenab
R. Ravi
R. Beas
R. Satluj
Mehrgarh
R. Indus
R. Yamuna
R. Ganga
R. Chambal
Bhimbetka
Koldihwa
Mahagara
R. Ghaghra
Chirand
R. Kosi
R. Brahmaputra
R. Ganga
R. Son
R. Padma
Daojali Hading
Tropic of Cancer
R. Narmada
Kolkata
R. Mahanadi
R. Tapi
R. Godavari
Mumbai
Inamgaon
R. Godavari
R. Krishna
R. Krishna
Hunsgi
ARABIAN SEA
BAY OF BENGAL
R. Tungbhadra
Kurnool Caves
R. Pennar
Brahmagiri
Hallur
R. Kaveri
Paiyampalli
LAKSHADWEEP
ANDAMAN AND NICOBAR ISLANDS
Adichanallur
INDIAN OCEAN
Reference
▲ Palaeolithic Sites
▣ Neolithic Sites
● Megalithic Sites
◆ Early Village
✱ Modern Cities
Map not to scale

Some Important Archaeological Sites

AN EXCERPT

In the Neolithic Age, humans quietly rewrote their own destiny — not with kings or armies, but with seeds, fire, and patience. For the first time, people stopped chasing food and began growing it, turning wild land into shared memory and fragile villages into the first idea of home. Stone tools grew sharper, hands grew steadier, and life slowed just enough for stories, rituals, and belonging to exist. It was self revolution — farming, pottery, and community — yet it reshaped the entire future of humanity more deeply than any battle ever could.

Development of Agriculture

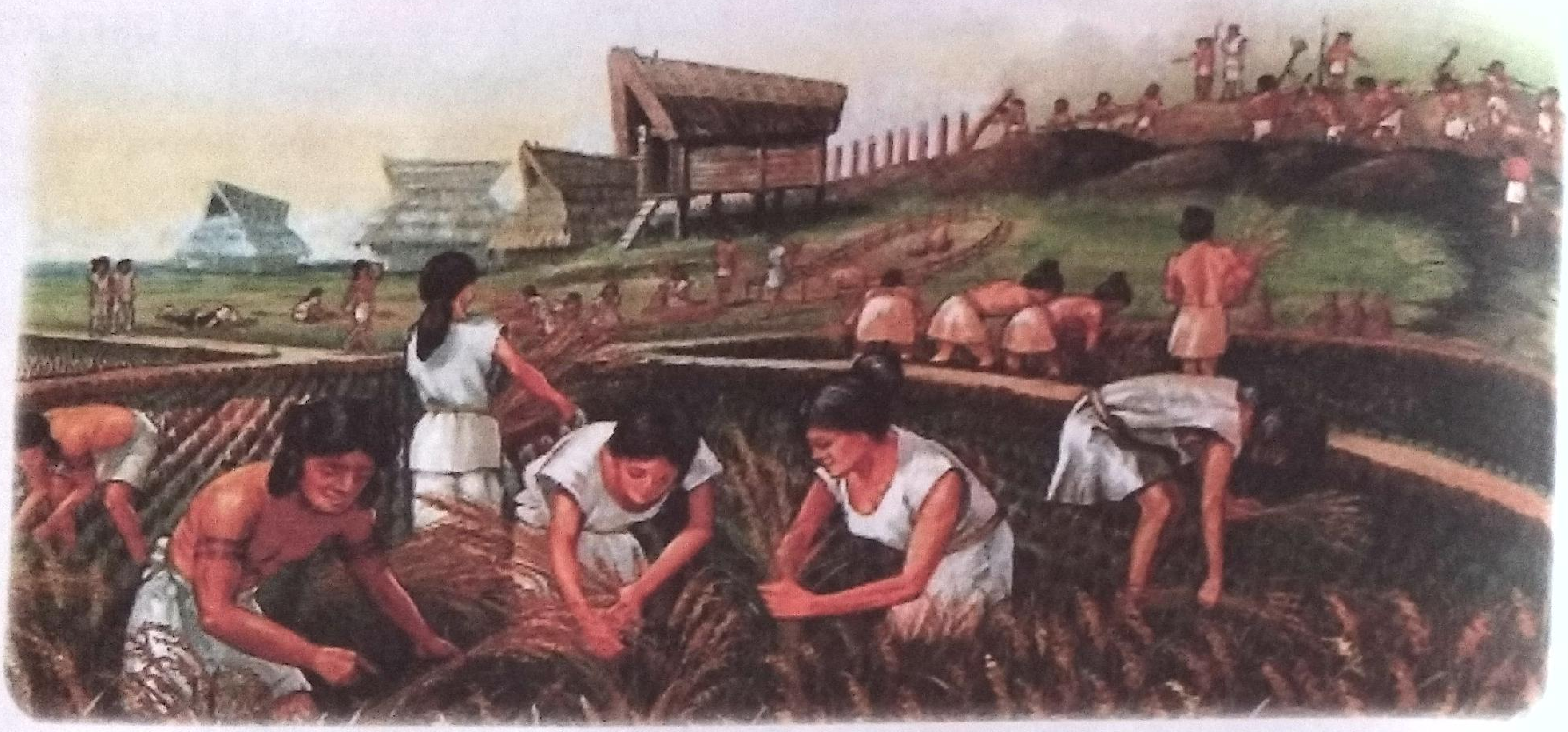
The emergence of agriculture was the most important development of the Neolithic Age. Early man turned from a food gatherer to a food producer. Agriculture led to a settled life. Man moved into larger settlements. He cultivated the fields, grew crops and stayed in one place. He did not have to move from place to place in search of food. He started living in huts made of dried leaves and mud.

The first cereals to be grown were wheat and barley. Later, he learnt to domesticate animals like dogs, sheep and cattle.

Agriculture was first practised by the people of the Near East (Modern Iran, Iraq, Turkey) and the (Lebanon, Palestine and Southern Syria) as early as 7000 BCE.

Many Neolithic sites have been discovered where traces of wheat, millets, lentils, grains and animal have been found. They are

- Mehrgarh in Pakistan.
- Koldihwa and Mahagara in Uttar Pradesh.
- Gufkral and Burzahom in Kashmir.
- Hallur in Karnataka and Paiyampalli in Tamil Nadu.



Early Farming

Domestication of Animals

The first domesticated animal was the dog. Dogs were most probably used for guarding caves and for pulli loads. Cattle, goat and sheep provided meat, milk and wool. The domestication of animals gave rise pastoralism. But what is pastoralism? Pastoralism is a form of farming in which animals such as camels, goats, cattle and sheep move in herds in search of fresh pastures and water.

Pottery

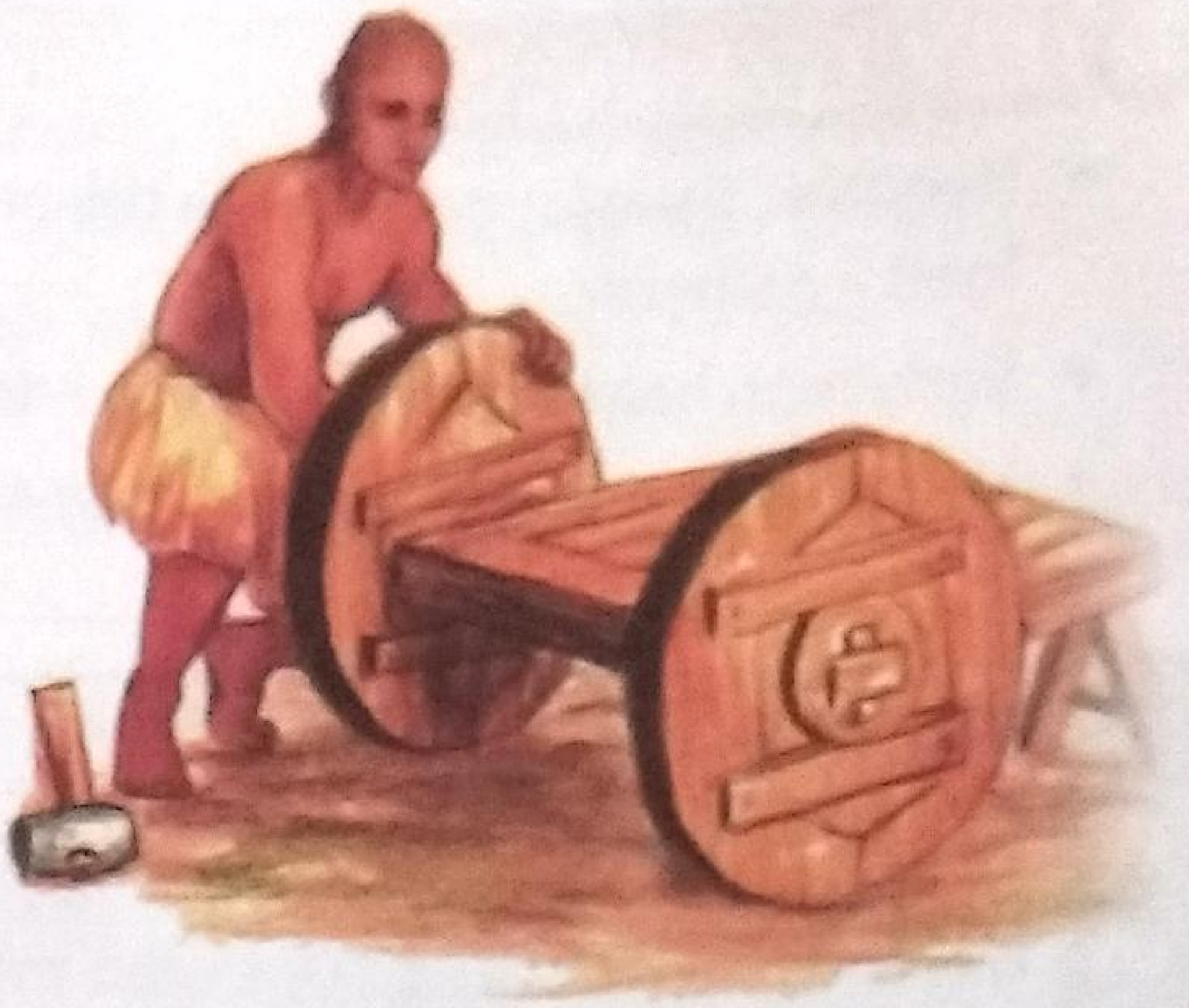
Once early man learnt how to grow food, he also developed the art of storing food. He needed vessels for it.

Potter's wheel

Neolithic man needed vessels to store food grains and water. He learned to make clay pottery with his hands. Later, these pots were decorated with various designs of animal figures on them. With the invention of the potter's wheel, various types of pottery could be made easily and more quickly.

Invention of the Wheel

One of the major achievements of the Neolithic period was the invention of the wheel. The potter's wheel enabled him to make pots of different shapes and sizes. The use of wheels made transportation easier and faster. The invention of the wheel led to the invention of carts and then to bullock-driven carts. Man could now move heavy loads easily and go from one place to another faster. Subsequently, the invention of the wheel led to the invention of spindle whorls for weaving cloth of wool and cotton. Various types of pottery enabled early men to store grains and seeds for the next season. Thus, the invention of wheel quickened the march of civilisation.



DID YOU KNOW?

- Domestication is a name given to a process in which people grow plants and look after animals.
- In domestication a selection of plants and animals are made by the people.
- Plants which are healthy, can bear and yield grains, are chosen.
- Domestication began 12,000 years ago.
- Sheep and goats, along with the dog, were among the first animals to be domesticated.

Findings at Various Neolithic Sites in India

Neolithic Site	Location	Remains of Bones	Remains of Grains
Mahagara	Uttar Pradesh	Marks of cattle hoof	Rice
Koldihwa	Uttar Pradesh	Bone fragments of animals	Rice
Chirand	Bihar	Bones of buffalo and ox	Wheat, barley and peas
Mehrgarh	Pakistan	Bones of sheep, goat, cattle	Wheat, barley
Burzahom	Kashmir valley	Bones of buffalo, cattle, dog, sheep, goat	Lentil, wheat
Gufkral	Kashmir valley	—	Lentil, wheat
Hallur	Karnataka	Bones of cattle, pig, goat and sheep	Millets
Paiyampalli	Tamil Nadu	Bones of cattle, pig and sheep	Millets, black gram

Neolithic Tools

Tools of the Neolithic Period included agricultural implements like sickles, digging sticks, hoes and grinding tools like mortar and pestles.

1. Polished stone tools with fine cutting edge were used for grinding grains and other products. Some tools were made of bones too.
2. Stone axes found from the Bellary district (Karnataka) and the Santhal Parganas (Jharkhand) also belonged to this period.

Polished stone tools of the Neolithic Period

Engage and Reflect

- What do you mean by the term 'Neolithic Revolution'?
- Why was it called a revolution?
- Distinguish between the tools of Neolithic and Mesolithic periods.

KEY LEARNINGS

- Neolithic Revolution refers to the period or era when early man became a food - producer from being a food - gatherer.
- Early man began farming, started domestication of animals such as sheep, goat and cattle.
- He learnt to make pottery to store grains and started living in permanent houses near the banks of rivers.

GLOSSARY

Mesolithic	:	The Middle Stone Age when men started making advanced stone tools.
Neolithic	:	The New Stone Age when men began to grow plants and domesticate animals..
Nomad	:	One who moves from place to place in search of food.
Palaeolithic	:	The Old Stone Age when men used only stone tools and were food gatherers.
Sites	:	Places where material remains of the past are found
Microliths	:	Small tools used by people of the Mesolithic period.
Revolution	:	A period of tremendous transformation from the previous one.

Exercises

A. Multiple choice questions (MCQs)

1. During the Stone Age early people used tools and weapons made of
   (a) copper (b) stone (c) iron (d) wood
2. What is the approximate period of Neolithic Age in India?
   (a) 15,000 BCE – 4,000 BCE (b) 10,000 BCE – 8,000 BCE
   (c) 8,000 BCE – 4,000 BCE (d) 4,000 BCE – 3,000 BCE
3. During which age early people used tools known as **Microliths**?
   (a) Palaeolithic Period (b) Mesolithic Period (c) Neolithic Period (d) All of these
4. Traces of ash left by early man have been found in which caves?
   (a) Bhimbetka (b) Kurnool (c) Golpur (d) All of these
5. Consider the following statements on the Palaeolithic Age and select the statements that describe the Palaeolithic Age correctly by using the codes given below.
   I. The Palaeolithic period is about 2 million years ago and lasted about 10,000 BCE.
   II. The Palaeolithic Period is also known as the Old Stone Age.
   III. Domestication of dogs began in Palaeolithic Age.

   Options:
   (a) I and II (b) Only II (c) II and III (d) Only III
6. Identify the activity that the Neolithic man started doing.
   (a) Hunting (b) Growing crops (c) Weaving clothes (d) Making stone tools
7. Which of the following factors significantly contributed to the Neolithic Revolution? Select the correct options
   1. Beginning of agriculture
   2. Domestication of animals
   3. Permanent settlement near rivers
   4. Discovery of fire

Options

(a) Statements 1 and 2 are appropriate (b) Statements 1, 2 and 3 are appropriate

(c) Statements 2, 3 and 4 are appropriate (d) Only statement 3 is appropriate

8. Which of the following statements about the Mesolithic period are correct?
   1. It existed between the Palaeolithic and Neolithic periods
   2. They mostly used stone tools made from chips like blades, points, borers and scrapers called Microliths
   3. The Mesolithic people invented pottery
   4. They stored grains in vessels

Options

(a) 1 and 2 (b) 2 and 3 (c) 1 and 4 (d) 2 and 4

B. Fill in the blanks.

1. The Palaeolithic period began about ____________ years ago.
2. The Mesolithic people used tools collectively called as ____________.
3. The Neolithic period began around ____________ BCE and lasted till about ____________ BCE.
4. The first somesticated animal was ____________.
5. One of the major achievements of the Neolithic period was the invention of ____________.

C. Match the following items given in column A with those in column B.

	Column A	Column B
1.	Mahagara	A. Pakistan
2.	Chirand	B. Kashmir Valley
3.	Burzahom	C. Bihar
4.	Mehrgarh	D. Uttar Pradesh

D. Very short answer type questions.

1. Name the periods in which the Stone Age is divided.
2. When did the Mesolithic period begin and end in India?
3. What was the most important discovery of early man?
4. Why is Bhimbetka famous?
5. What was the most important development of Neolithic Age?
6. Name two important archaeological sites of Neolithic India?
7. Which were the first cereals to be grown by early man?
8. Which were the first animals to be domesticated by early man.

E. Short answer type questions.

1. How did the Stone Age people get food?
2. How did the early man discover fire?
3. Mention any three uses of stone tools.
4. How did the invention of wheel benefit early man?
5. Where have the Neolithic tools been found in India?
6. Why did the early man live in group?

F. Long answer type questions.

1. Bring out the main features of the Neolithic Age.
2. Differentiate between the Palaeolithic period and the Mesolithic Period.

3. Describe major Mesolithic sites.
4. Differentiate between the Mesolithic and Neolithic periods.
5. Bring out the main features of Neolithic Revolution.
6. How did the invention of wheel quicken the march of human civilisation?
7. Differentiate between the Palaeolithic and Neolithic Age.

G. Assertion-Reason Questions

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the co provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(c) (A) is correct but (R) is wrong
(d) (A) is wrong but (R) is correct

1. **Assertion (A) :** Early man used stone tools
   Reason (R) : It is therefore called as the Stone Age.
2. **Assertion (A) :** Neolithic p0eriod is referrred to as Neolithic Revolution.
   Reason (R) : Development of farming, domestication of animals revolutionaised the life of early man.
3. **Assertion (A) :** The people of Mesolithic period were hunter – gatherers.
   Reason (R) : They cultivated grains and domesticated animals.

H. Case-based questions.

Read the passage given below and answer the questions that follow.

Stone tools have been found from many sites as well. Many of these are different from the earlier Palaeolit tools and that is why they are called Neolithic. These include tools that were polished to give a fine cutt edge, and mortars and pestles used for grinding grain and other plant produce. Mortars and pestles are use for grinding grain even today, several thousand years later. At the same time, tools of the Palaeolithic type continued to be made and used, and remember, some tools were also made of bone.

1. How were the Neolithic tools different?
2. What are mortars and pestles?
3. Distinguish between the tools of the Old and New Stone Age.

I. Map skill based question

On an outline map of India, locate and label the following Neolithic sites —

Chirand, Hallar, Mahagara, Burzahom

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Theme IV : Beginnings of Civilisation

5

Harappan And Contemporary Mesopotamian Civilisations

KEY CONCEPTS

- Harappan Civilisation – Location and extent, Town planning, Economy, Arts and Crafts, Religion, Decline.
- Mesopotamian Civilisation – Extent, Society, Town planning, Economy, Religion, Art and Architecture, Achievements, Decline.

THE HARAPPAN CIVILISATION

Discovery and Extent

In 1921 an Indian archaeologist, **Daya Ram Sahni**, discovered the ruins of the city of **Harappa**. In **1922 Rakhal Das Banerji** discovered the ruins of **Mohenjodaro** in the Larkana district of Sindh (Present Pakistan). These two discoveries–

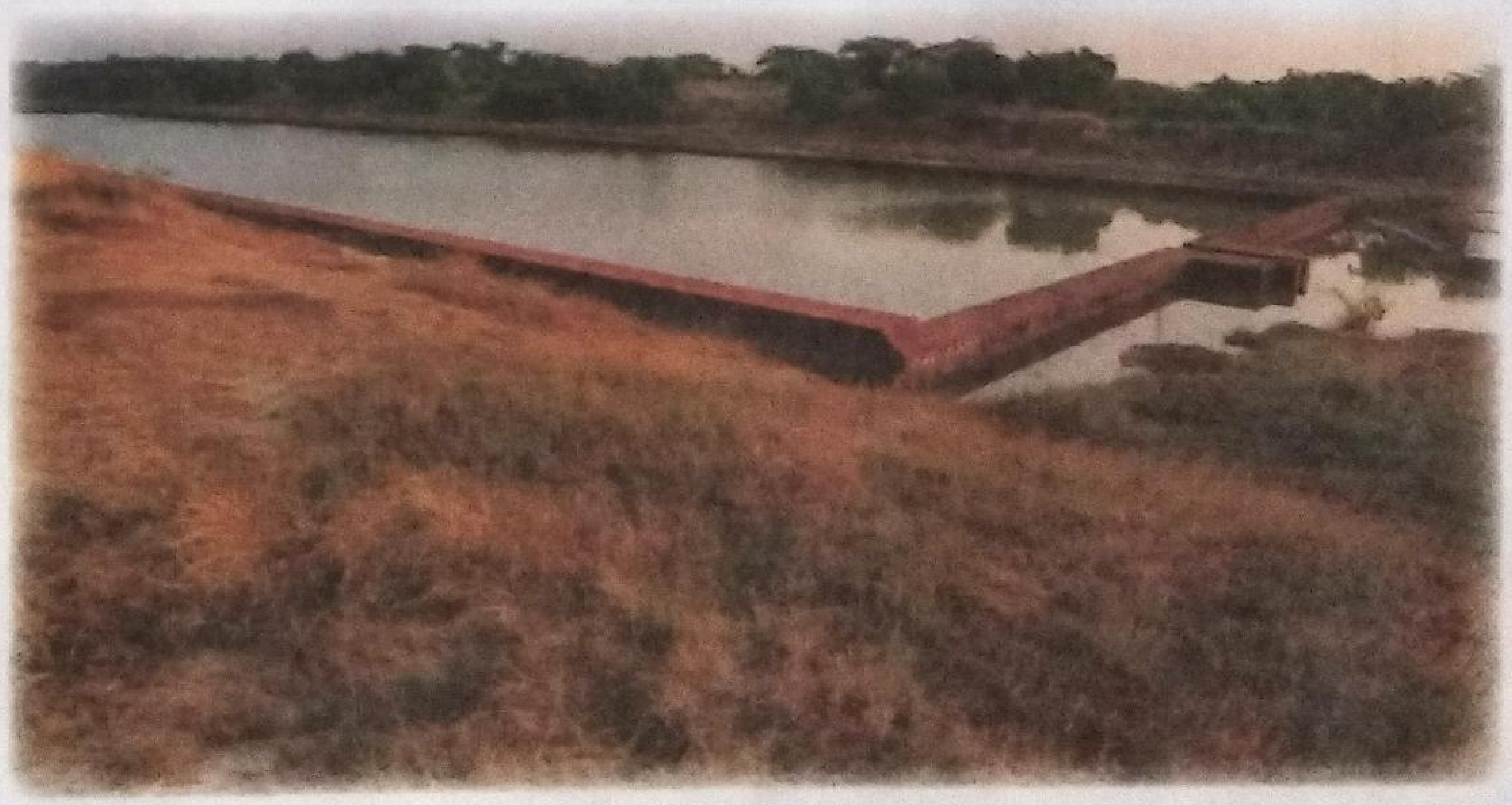
- nullified the old theory that the history of India started with the coming of the Aryans.
- brought to light the fact that a very advanced civilisation existed in India about 4500 years ago.

As both the sites belonged to the Indus Valley, this civilisation came to be called the Indus Valley Civilisation. **Harappa** was the **first city** to be **discovered** in India, so this civilisation is also called 'Harappan Civilisation'.

DID YOU KNOW? Harappa was one of the oldest cities discovered by archaeologists. Harappan cities developed about 4500 years ago. Harappa was the first site of the Indus Valley Civilisation to be discovered.

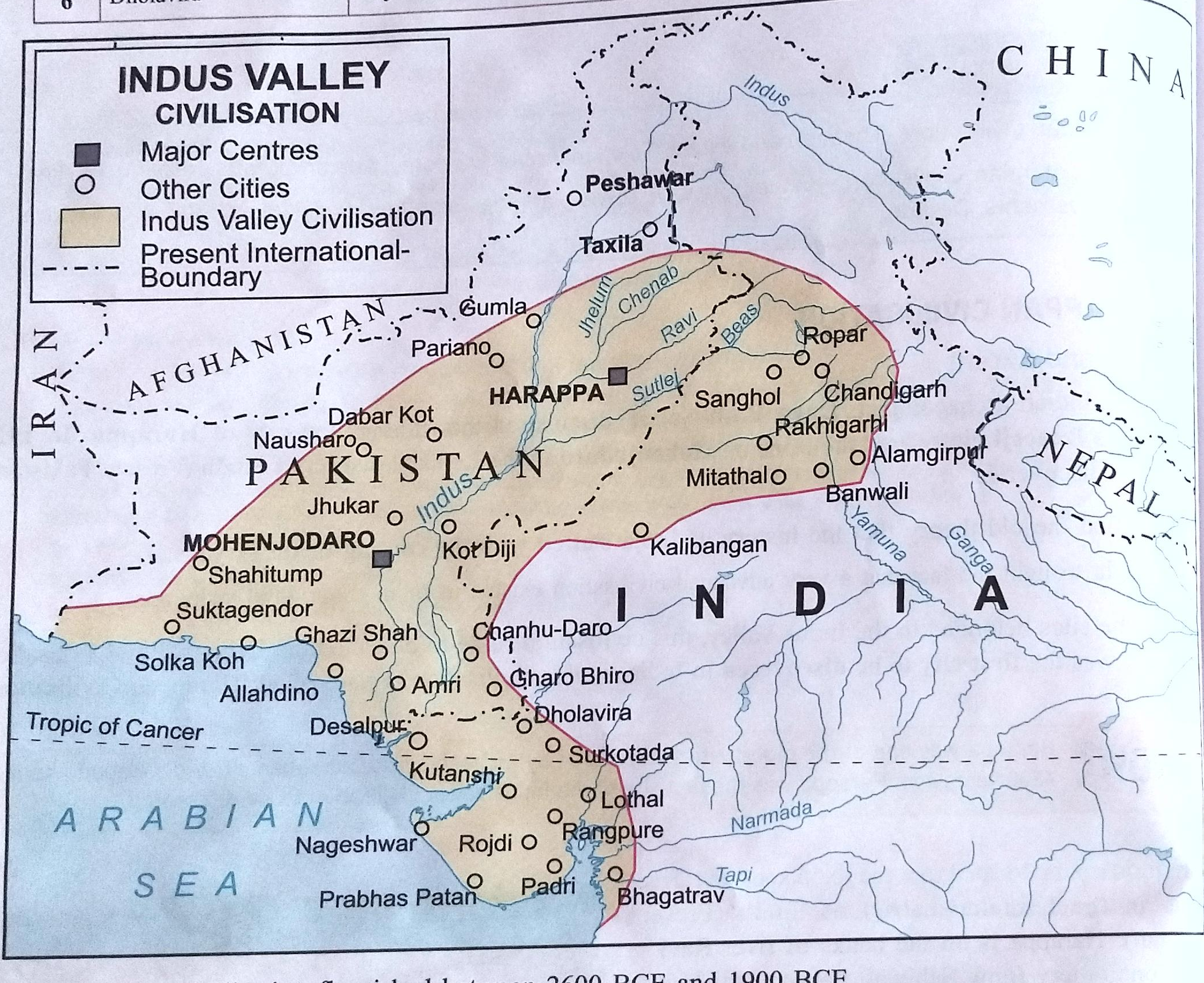
Mohenjodaro is located on the banks of the river Indus in the Larkana district of Sindh (Present Pakistan). Harappa is on the banks of river Ravi in the Montgomery (now Sahiwal, Pakistan) district in Pakistan. Mohenjodaro means 'Mound of the Dead'.

More than 1300 sites have been discovered in large parts of North and Central India, Rajasthan, North Western India, Sindh and Baluchistan. Some of the important sites (other than Harappa and Mohenjodaro) discovered are given in the chart below.



Lothal Dockyard

S. No.	Sites	Location	Feature
1.	Lothal	Gujarat	A dockyard was found where ships docked.
2.	Kalibangan	Rajasthan	Terracotta bangles found here
3.	Banawali	Haryana	Well constructed fort town
4.	Suktagendor	Pakistan	Substantial stone walls and gateways
5.	Alamgirpur	Uttar Pradesh	Easternmost Harappan settlement
6	Dholavira	Gujarat	Water Reservoir found to store water for agriculture


INDUS VALLEY
CIVILISATION
■ Major Centres
○ Other Cities
Indus Valley Civilisation
Present International-Boundary
CHINA
IRAN
AFGHANISTAN
PAKISTAN
NEPAL
INDIA
ARABIAN SEA
Tropic of Cancer
Indus
Jhelum
Chenab
Ravi
Beas
Sutlej
Yamuna
Ganga
Narmada
Tapi
Peshawar
Taxila
Gumla
Pariano
HARAPPA
Ropar
Sanghol
Chandigarh
Rakhigarhi
Alamgirpur
Mitathal
Banwali
Dabar Kot
Nausharo
Jhukar
MOHENJODARO
Shahitump
Kot Diji
Kalibangan
Suktagendor
Ghazi Shah
Chanhu-Daro
Solka Koh
Allahdino
Amri
Gharo Bhiro
Desalpur
Dholavira
Surkotada
Kutanshi
Lothal
Nageshwar
Rojdi
Rangpure
Prabhas Patan
Padri
Bhagatrav

The Indus Valley Civilisation flourished between 2600 BCE and 1900 BCE.

Excavations at different sites show that the Indus Valley people led a highly advanced city life. Some of th spectacular features of this civilisation are–

- Systematically planned cities.
- Well developed roads with grid pattern.
- Remarkable planning of houses.
- Excellent drainage system.

DID YOU KNOW?

- What is civilisation ?

The term comes from the Latin 'civis', meaning "citizen" or "townsman." It is the total accomplishment of human society in terms of agriculture, division of labour, population increase and urbanisation.

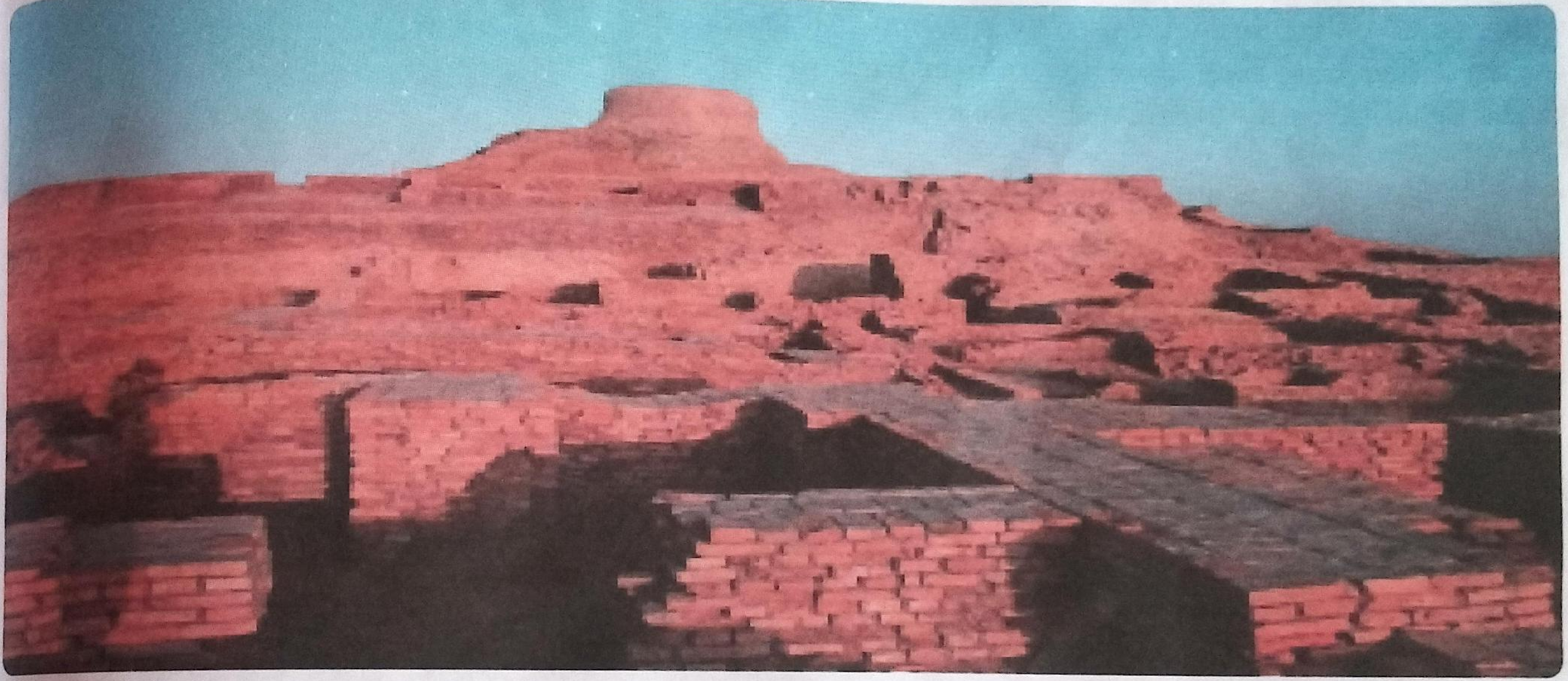
- What is culture ?

Culture comes from Latin cultura, meaning "to cultivate." It includes technology, art, science, as well as moral systems and the characteristic behaviours and habits of mankind.

Town Planning

The cities of Harappa and Mohenjodaro were divided into two parts. The Upper town was built on a raised ground. It has been described as the 'Citadel' or the **'Acropolis'.** The Citadel had high walls which provided protection against floods. Here were built public buildings like the granaries, and religious buildings. Probably the ruling class lived here.

The Lower town, which was much bigger, contained the houses and workplaces of the common people. Each house was built with a courtyard, several rooms, a toilet and a well. All the buildings were built of burnt bricks. Large blocks of houses were built along the sides of streets. These houses had flat roofs. Many of these were double-storeyed.



The Citadel, Mohenjodaro

The houses had open courtyards and rooms were constructed surrounding the courtyard.

The roads of the Indus Valley civilisation were :

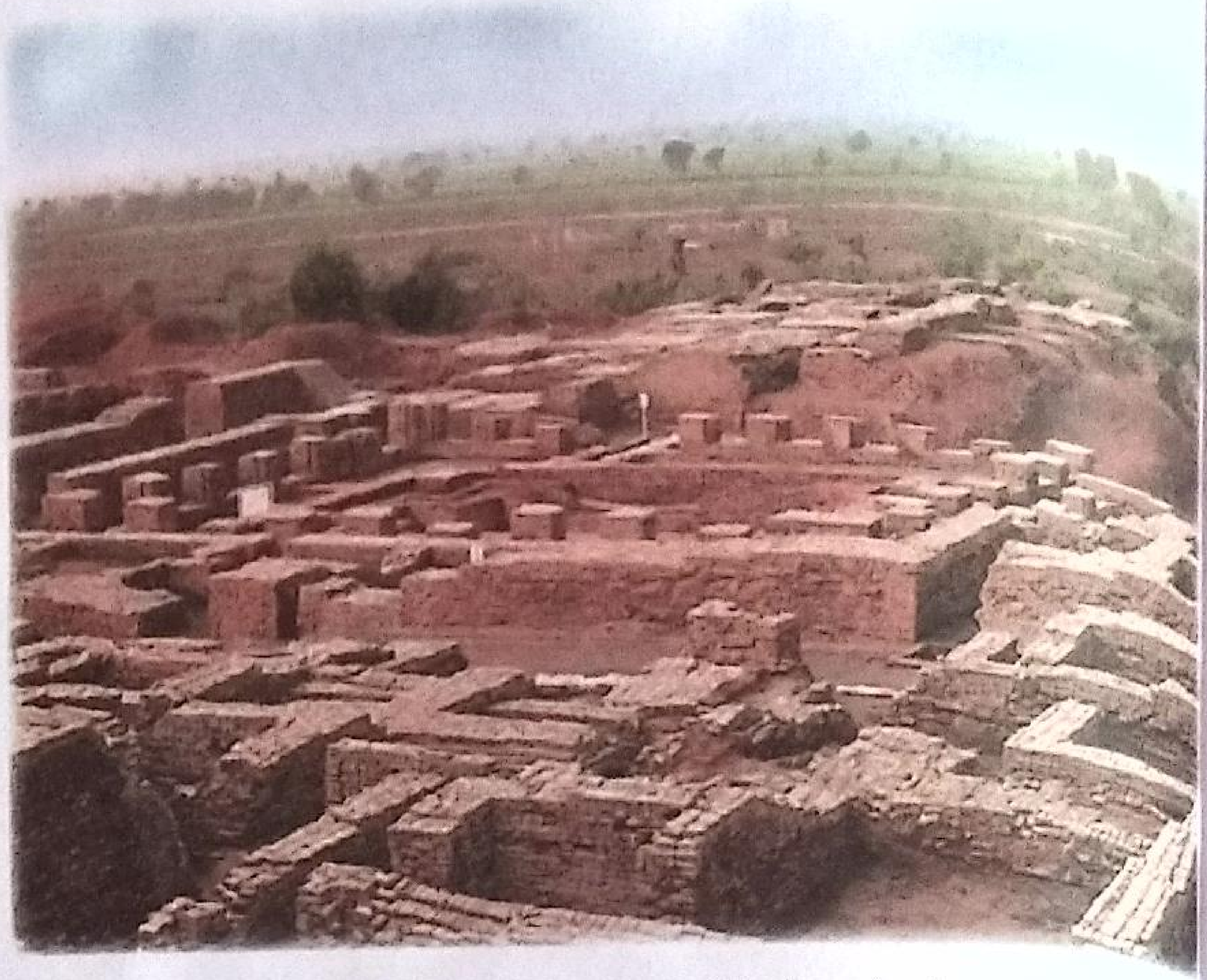
- Wide and straight intersecting each other at right angles.
- The smaller streets joined the main road at right angles.
- The streets had lamp-posts.
- The streets had the rounded corners so that carts could pass easily.
- Houses were built on both sides of the streets. It made the grid pattern.

The Great Bath

The Great Bath, Mohenjodaro

Another famous structure discovered at Mohenjodaro is the Great Bath — a rectangular structure resembling a swimming pool. It is an example of beautiful brickwork. The Great Bath was perhaps used for religious bathing. It had six entrances, a central bathing pool, galleries and dressing rooms. Steps led to the bottom of the pool. Burnt bricks were used for the floor and walls of the pool. There was an outlet to drain the used water. Water for the bath was taken from an adjacent well.

Granaries

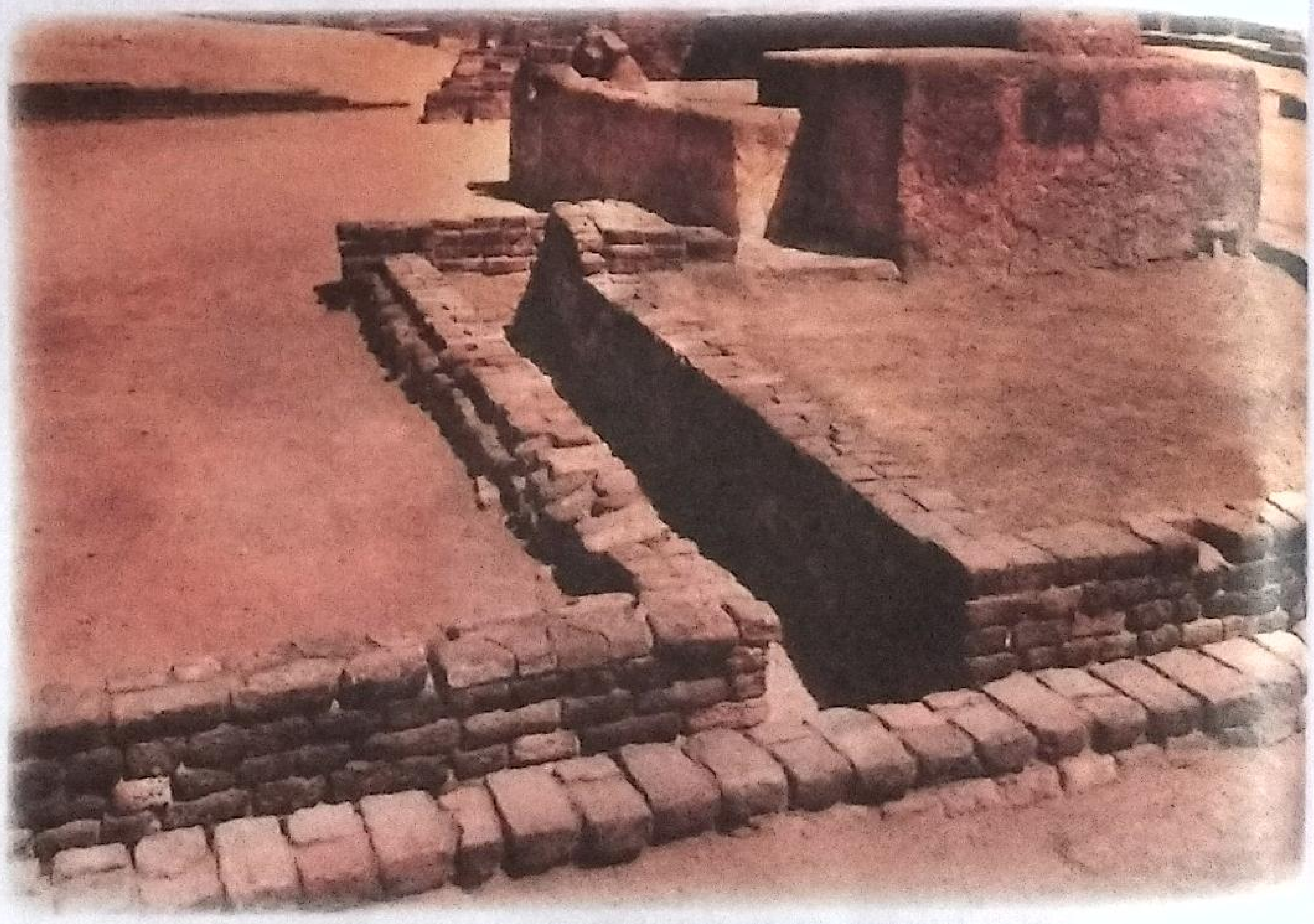

The Great Granary, Mohenjodaro

Both Harappa and Mohenjodaro had impressive buildings in the Citadel. In Mohenjodaro the largest building discovered is the **Great Granary**. It was used for storing grains. But in the citadel of Harappa, we find as many as six granaries. Near the granaries brick platforms have been found. They might have been used for threshing grain. Many two-room shelters have also been found nearby, which could be the dwellings used by labourers. All these granaries had been built close to the river bank so that grains could be easily transported by boats.

DID YOU KNOW?

The Indus Valley people constructed Dwelling Houses. These houses were built on raised platform and varied in size. They were built of brick, lime & gypsum. Almost every house had wells, drains, bathrooms, kitchens and courtyards.

Drainage System


Drainage System, Lothal

The drainage system of the Harappan cities was incredible. The rooms had sloping floors and had drains which were connected to the street drains. The kitchen, too, had drains. The street drains were covered with stone slabs or bricks and had manholes at regular intervals. These drains were cleaned regularly. The main drains emptied outside the city. It shows that people of the Indus Valley were conscious of hygiene and sanitation.

Governance

The Indus cities were well administered. There is no evidence that a king or a single ruler ruled the cities. The cities were probably administered by a committee of people comprising rich merchants an priests. They looked after all aspects of life — trade, taxes, law and order, etc.

Social Divisions

The society was probably divided into three classes. The ruling class consisted of rich merchants and the priests. They lived in the Citadel. The second class or group was of small merchants, artisans and craftsmen. They lived in the lower town. The labourers formed the third group and lived in outer limits of the city. Many farmers lived and worked in the villages around the cities.

Economy

The main crops grown were wheat, rice, mustard, sesame and barley. People ate meat, fish and eggs. Fruits and milk were also popular. The Indus people were the earliest people to grow cotton. Oxen, buffaloes, goats, sheep, pigs, cats, dogs were domesticated.

Seal depicting a boat

The Harappan people not only carried on internal trade, they also traded with other civilisations. Trade was carried on with Mesopotamia (Modern Iraq) and Afghanistan. Mesopotamian seals have been found in the Harappan cities, and Harappan seals have been found in the cities of ancient Mesopotamia. This trade was carried on from the port of Lothal. Here a big dockyard has been discovered. Trade was carried on with Egypt and Iran. A variety of weights and measures were used. The barter system was used for trade. They carried on internal trade with places located in modern Karnataka, Rajasthan and Kashmir.

Besides farming, the Harappan people followed different occupations — weaving, pottery making, jewellery making, metal work, toy-making, stone cutting, seal making and trading. The art of pottery making had reached great heights in this civilisation. Pottery was polished and had floral patterns and drawings on them.

Pottery

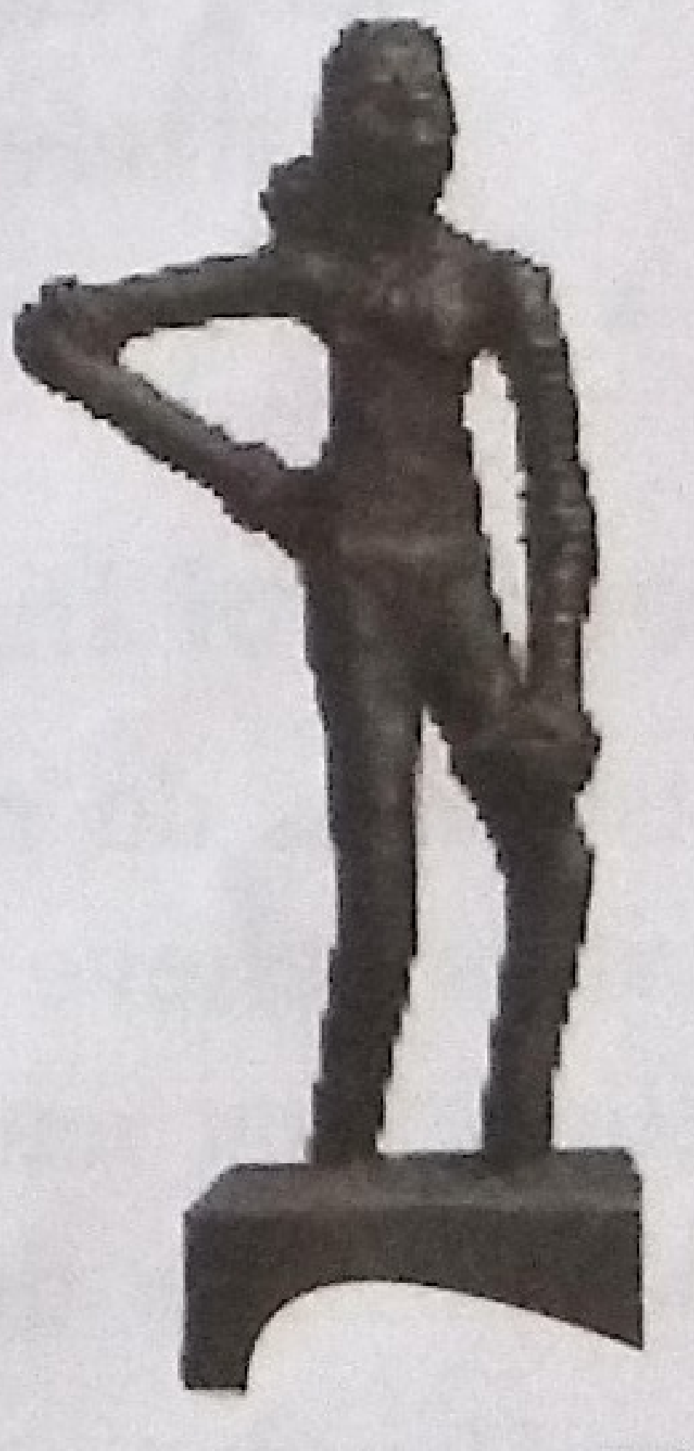
Toy cart

Art And Craft

A bronze figure of a dancing girl has been found at Mohenjodaro. One of the stone statues shows a bearded nobleman or priest wearing a shawl. The figures of animals, birds and men, painted on pottery, show the artistic skill of the people. Some of the pots are highly glazed and painted.

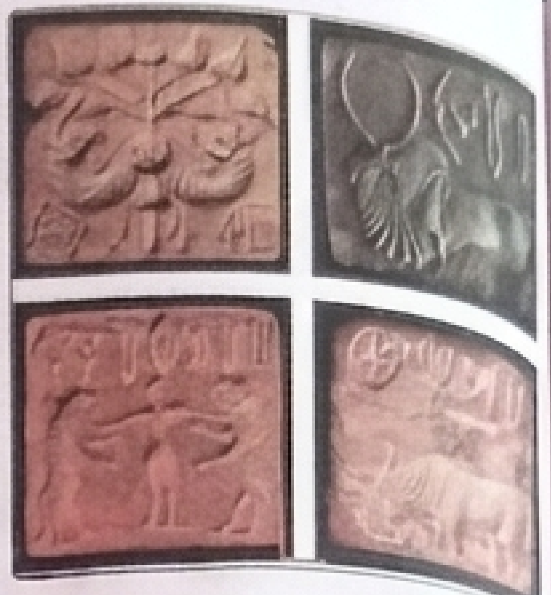
They produced images, pots, various tools and weapons such as axes, saws, knives and spears. Spinning, brick-laying, boat-making, seal-making and terracotta manufacture were important crafts. They made beautiful jewellery as both men and women wore them.

The Priest king,
Mohenjodaro


The Dancing Girl,
Mohenjodaro

The greatest artistic creations of the Harappan culture are the seals. About 2000 seals have been found. Many of them carry short inscriptions with pictures of one-horned bull, buffalo, tiger, elephant, goat, etc. They were also used by merchants to mark their goods. The seals had animal figures and picture-like signs on them. They give us an idea of their religion. They are square or rectangular tablets made of clay. The script on these seals has not bee deciphered as yet.

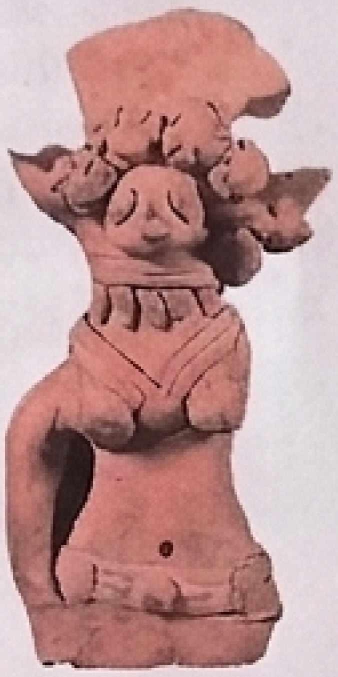
Beautiful jewellery has been found at Harappa

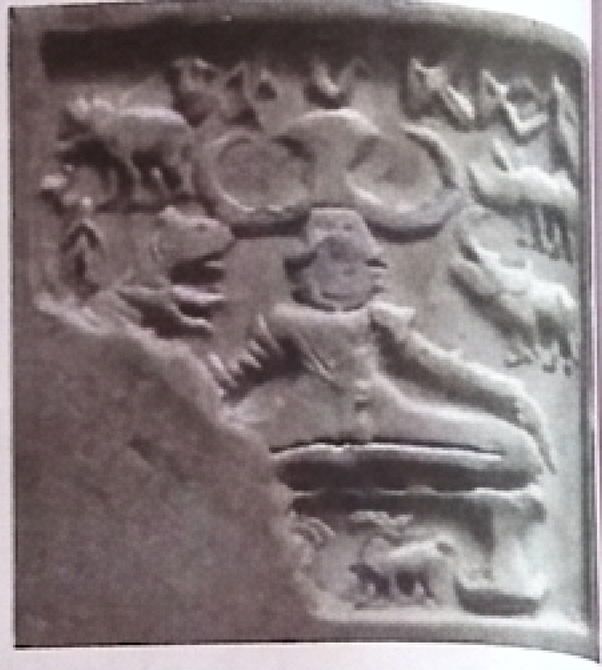

Seals from Indus Valley Civilisatio

Religion

The Harappan people worshipped trees and animals. Pipal tree was regarded as sacred. At various sites clay figures of Mother Goddess have been found. A three-faced figure surrounded by a tiger, a rhinoceros, a buffalo and an elephant is also found. According to some historians this is the earliest representation of Lord Shiva as "Pashupati". The most important animal to be worshipped was the humped bull.

Inhabitants of the Indus valley worshipped gods in the form of trees, animals and human beings. But the gods were not placed in temples.


Mother Goddess


Pashupati Seal

DID YOU KNOW? The Harappan culture belongs to the Bronze Age. Bronze had been discovered by the people of the Indus Valley Civilisation. The bronzesmiths mixed copper (which came from Rajasthan and Baluchistan) and tin (which came from Afghanistan and Iran) to form the alloy – bronze. Bronze statues have been found during excavations. Bronze statue of a dancing girl is the most famous.

Engage and Reflect

- Many religious aspects of the Harappan Civilisation like the ritual bathing, worship of Mother Goddess, Pipal tree and Pashupati are still practised.
- Compare and contrast Harappan religion with that of modern Hinduism.

Decline of the Civilisation

Historians do not know the real causes but there are many theories about the fall of the civilisation. Som writers believe that Harappan cities were destroyed by the invaders, who could have been the Aryans. Othe believe that natural calamities like floods, earthquakes, epidemics might have destroyed the civilisation. It also possible that river Indus might have changed its course and turned the region into a desert.

The Harappan Culture existed between 2600 BCE and 1900 BCE. Around 1750 BCE, cities of Harappa ar Mohenjodro declined but other cities faded out gradually.

AN EXCERPT

The cities of the Harappan civilisation were not chaotic agglomerations of huts, but carefully imagined urban worlds — built on geometry, planning, and civic discipline. Steets followed a deliberate grid, houses opened into private courtyards, and an unseen but powerful concern for hygiene shaped drains, wells and water channels across the city. What is most striking is not monumental palaces or boastful kings, but a quiet, collective intelligence—an urban culture that invested its energy in everyday life, public order, and functional beauty rather than royal display. The Harappan city feels less like a stage for rules and more like a carefully tuned instument for society itself.

KEY LEARNINGS

- Indus Valley Civilisation : Flourished on the banks of river Indus. More than 1300 sites have been discovered since 1921 in Sindh, Gujarat, Punjab, Uttar Pradesh and Haryana. This civilisation was an urban civilisation.

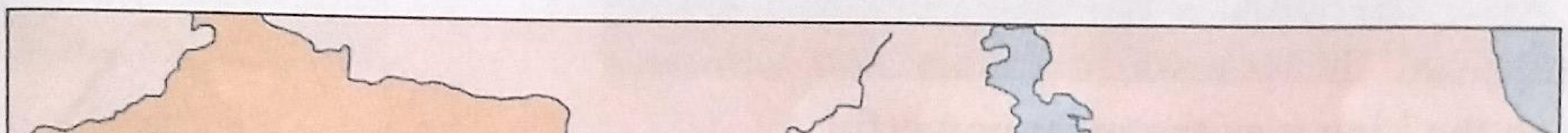
Special features :

- An urban civilisation;
- The Great Bath at Mohenjodaro;
- Wheat and barley grown;
- Beautiful pottery and toys;
- Well-planned cities and proper drainage system;
- The granaries, public buildings in the citadel;
- Cotton and woollen clothes, ornaments worn by both men and women;
- Distinctive seals.

- Traded with Mesopotamia and Afghanistan.
- Religion — people worshipped Mother Goddess and Pashupati. They also worshipped pipal tree and animals such as the humped bull.
- This civilisation flourished roughly between 2600 BCE and 1900 BCE. Various towns gradually faded out.

MESOPOTAMIAN CIVILISATION

It was one of the four river valley civilisations which were contemporary with common features.


Haran
Gozan
Balikh River
ANCIENT MESOPOTAMIA
Habur River
Nineveh
Assur
Mari
Zagrus Mountains
Diyala River
Akkad
Tigris River
Choaspes River
Ulai River
ARABIAN DESERT
Babylon
Kebar River
Isin
Girsm
Lagash
Erech
Euphrates River
Ur
ELAM
Ancient Site
Persian Gulf

The Mesopotamian Civilisation

The name Mesopotamia is derived from the Greek words *mesos*, meaning middle, and *potamos* meaning river. That means land between the rivers. Mesopotamian culture is known for its prosperity, city life, its literature, mathematics and science. The ancient towns and cities of Mesopotamia were discovered by archaeologists about 150 years ago.

Extent of the Civilisation

Mesopotamia (Present day part of the Republic of Iraq) was situated in Western Asia. Around 4000 BCE to 2000 BCE, the great Mesopotamian civilisation flourished in this area. It was situated between the two rivers, the Tigris and the Euphrates, which brought plentiful supply of water and fertile soil. These rivers were regularly flooded, so the Mesopotamians built canals. These canals helped in irrigation, navigation and transport of goods from one place to another. The southernmost region of this civilisation was called Sumer and its people Sumerians. In the northwest of Sumer, regions were known as Babylonia and Akkad. The highland in the north was called Assyria.

Archaeological and literary sources such as Ziggurat at Ur and Epic of *Gilgamesh* provide us information about Mesopotamian civilisation.

Mesopotamian Society

The people of Mesopotamia were divided into three social classes. The first class comprised the priests, officials and warriors among which the king was the most powerful. They looked after the administrative as well as the military aspects of the state, i.e. welfare and protection of the state and society.

The second class consisted of businessmen, professionals and skilled labourers who looked after the economic welfare of society. The majority of the people were farmers.

The third social class consisted of the slaves. These people were engaged in agriculture, craft, trade and commerce.

Mesopotamian Priest

DID YOU KNOW? The earliest cities in Mesopotamia date back to Bronze Age, 3000 BCE. Mesopotamian weapons were also of bronze - for example, the tips of the spears. Mesopotamians were one of the first Bronze age people in the world.

The first class comprised the priests, officials and warriors among which the king was the most powerful. They looked after the administrative as well as the military aspects of the state, i.e. welfare and protection of the state and society.

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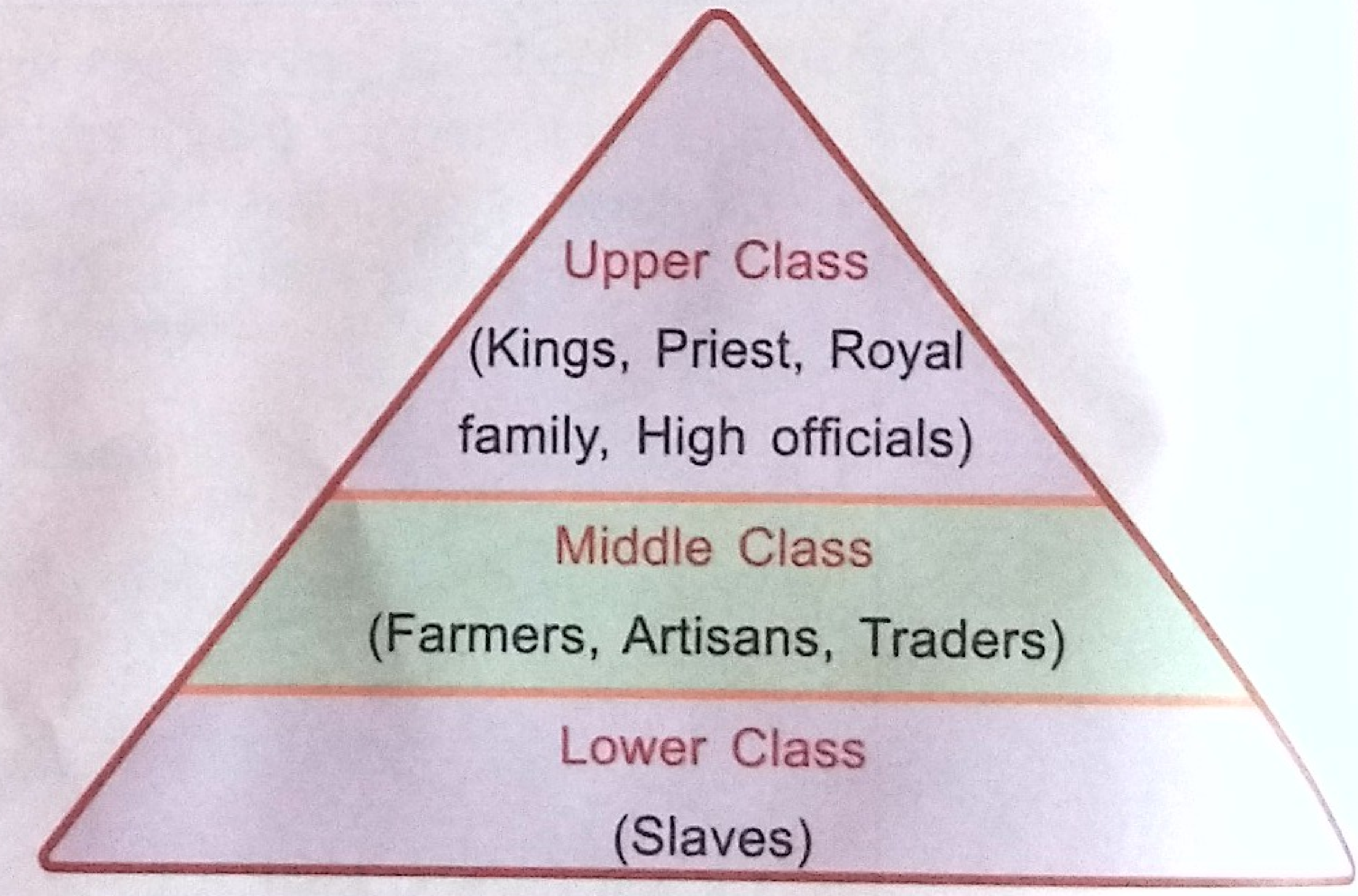
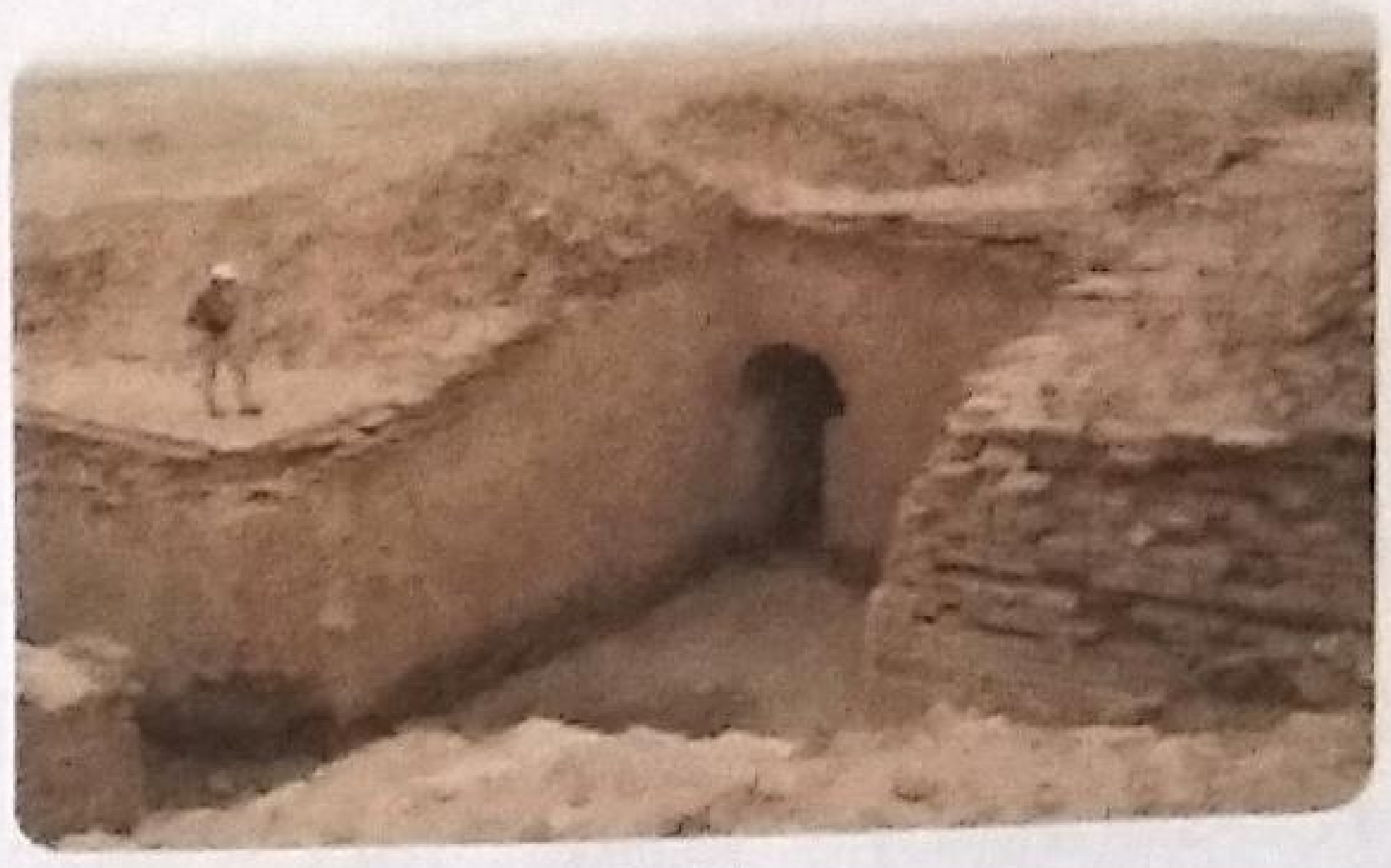

Upper Class
(Kings, Priest, Royal family, High officials)
Middle Class
(Farmers, Artisans, Traders)
Lower Class
(Slaves)

Social Structure

Family Life

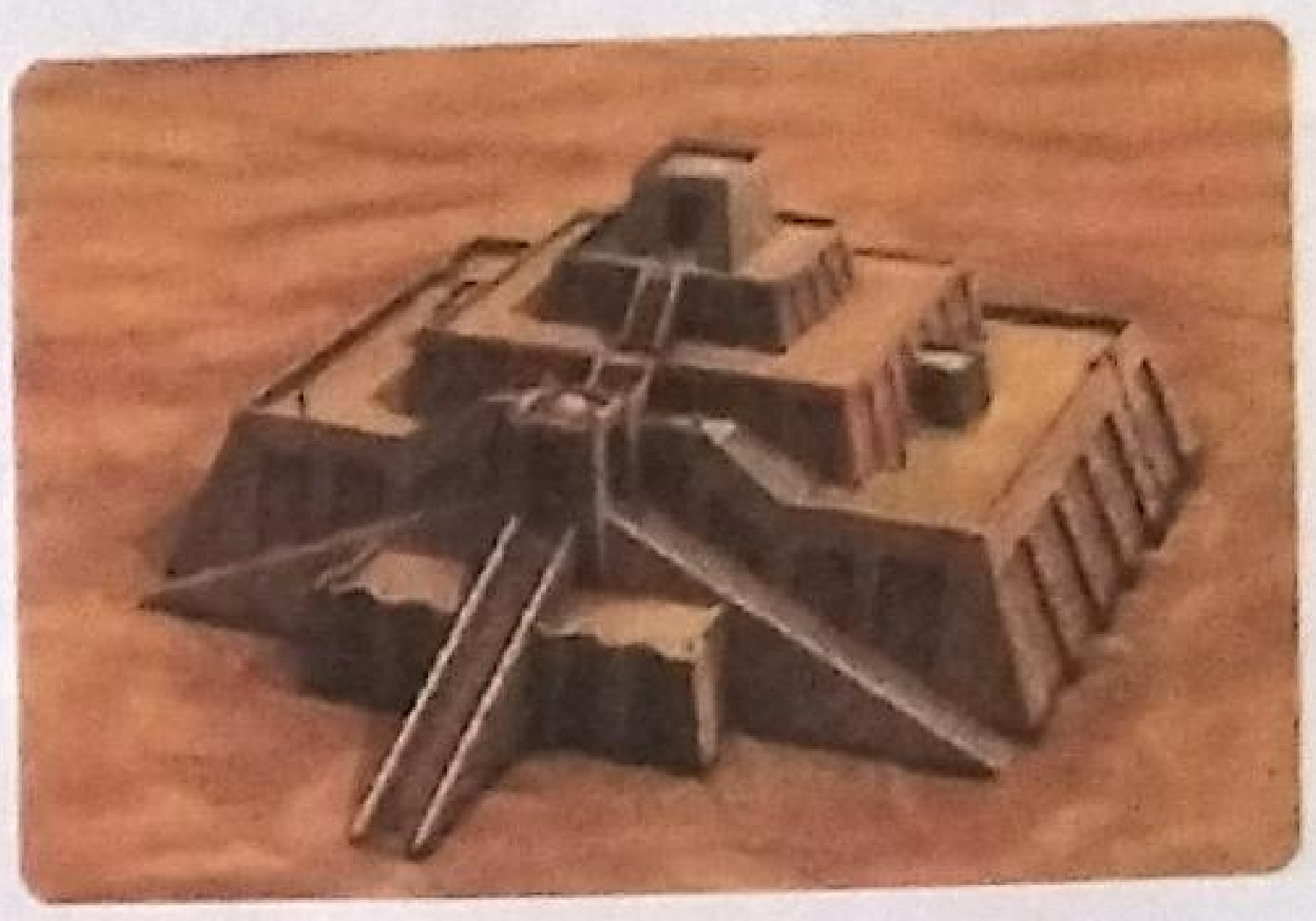
The family was a close knit structure. The father was the head of the family. Upbringing of the children was strict. Boys were sent to school to be proficient in reading, writing and arithmetic. Girls were trained in music and dance. Women were given importance and they had rights which were protected.

Town Planning


Uruk Town

The Sumerians were pioneers in the development of Mesopotamian civilisation. They built city-states, each under a chief or king. Each city-state had its own laws and its own army. Each was a small nation. Some of the important cities were Ur, Uruk, Lagash, Babylon and Nineveh. The excavations at Ur, one of the greatest cities of Mesopotamian civilisation, have revealed that the city was divided into three main areas — the sacred area, the walled city on a mound, and an outer town.

The sacred area consisted of a main temple called Ziggurat, which was dedicated to the patron God of the city. The temple was made of many storeys, each smaller than the one below it. The sacred area was also the administrative centre. Offices and storehouses have been found here. The walled city and outer town were the areas where people lived.


Ziggurat (temple)

Religion

The Mesopotamians believed in many gods and goddesses. They also worshipped different forces of nature. They worshipped gods like **An, Enlil, Enki, Marduk, Ishtar and Nabu**. Each city had its own god, and a **Ziggurat** was built in his honour. The Mesopotamians believed in **life after death**. They buried their dead with objects they used when alive.

God Nabu

Sumerian Gods

Economy

Agriculture was the main occupation of the people and farmers grew barley, corn, dates, fruits and vegetables. They had a good system of irrigation to ensure a regular supply of water throughout the year. Metal workers like blacksmiths and goldsmiths made great advance in their craft. They were the first to use the potter's wheel and make glassware. Cloth making progressed. They domesticated animals such as sheep, goats, donkeys, cows, etc. They traded with many countries, including India.

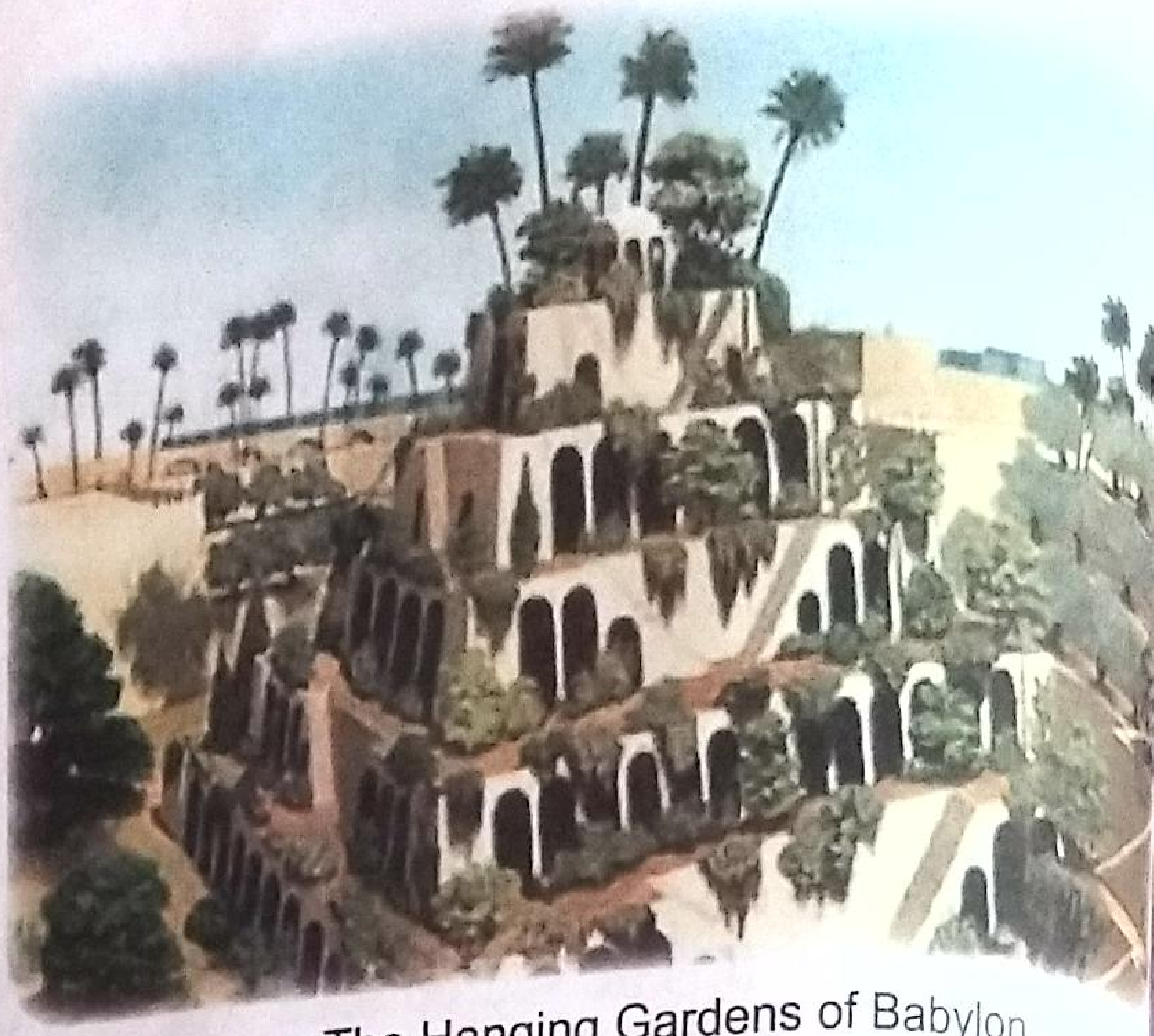
Trade and Commerce

Trade, both internal and external, flourished here. They traded with India, Egypt and the Mediterranean countries. The traders kept their records on clay tablets. The fact that the seals of Indus cities were found in Mesopotamia and Mesopotamian seals were found in Indus Valley, proved that trade existed between these two civilisations.

Dilmun Seal

Art and Architecture

Mesopotamians made their buildings with baked bricks, stone, wood, etc.


The Hanging Gardens of Babylon

The Hanging Gardens of Babylon (built by Nebuchadnezzar II) is one of the seven wonders of the world. He got it built for his wife who was the native of a green and mountainous land. She would miss the scenic beauty of her homeland. Nebuchadnezzar II recreated her beautiful homeland by building the Hanging Gardens.

The ziggurat (temples) had several storeys. There were drains made of baked bricks to carry rainwater away from Ziggurat. One of their greatest contributions in the field of architecture was the introduction of architectural features such as — columns, domes, vaults and arches

Engage and Reflect

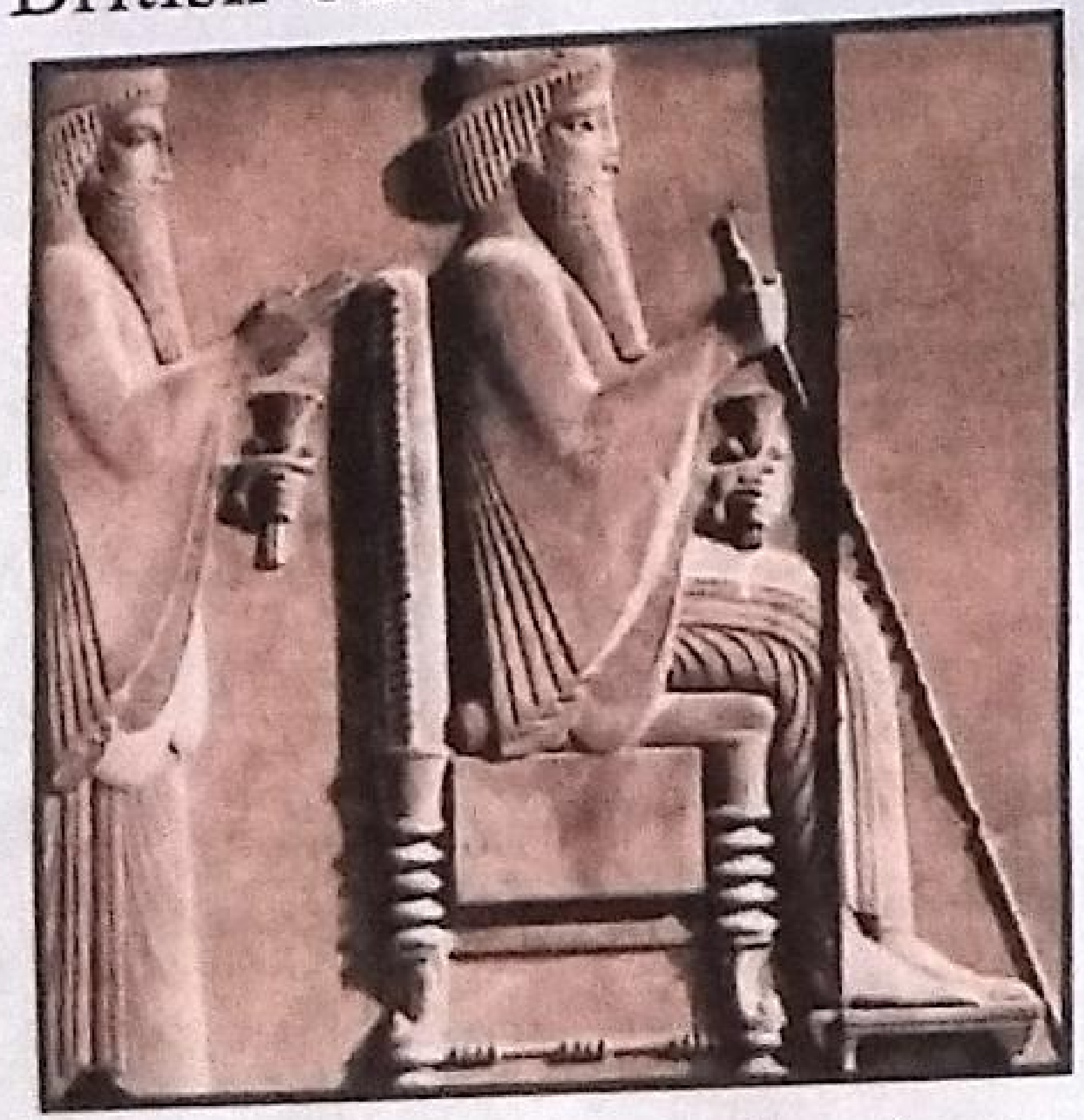
The Mesopotamian people not only carried on internal trade, they also traded with other civilisations. Discuss wha kind of items were traded. What was the system of exchange? Who benefited more from this trade?

ACHIEVEMENTS OF THE MESOPOTAMIAN CIVILISATION

Script and Literature

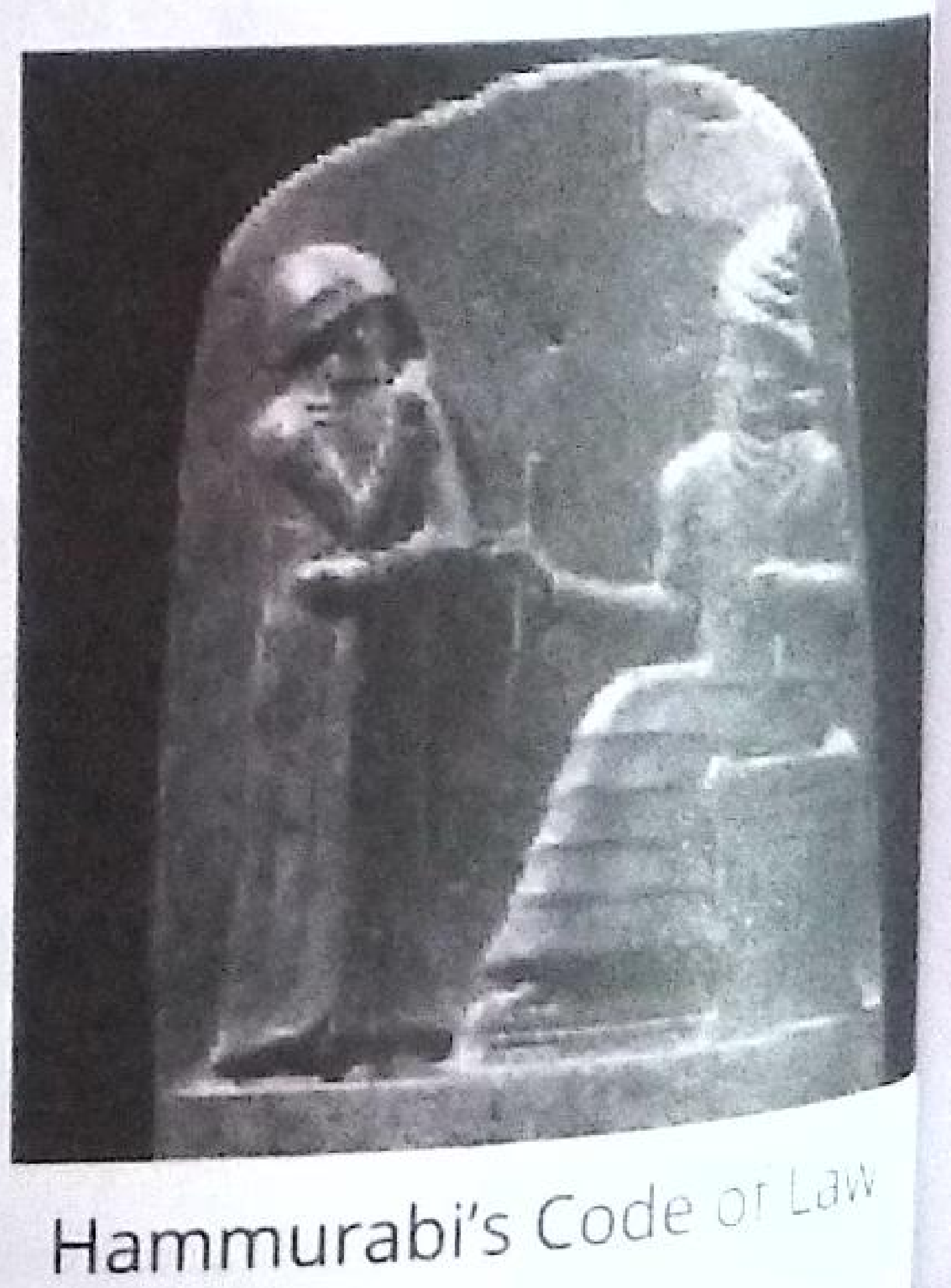
Cuneiform writing on clay ta

The Sumerians developed a system of writing known as **Cuneiform**. The script was wedge-shaped. It was written from right to left with a pen made of reed or bone called Stylus. The script was deciphered by Henry Rawlinson, a British officer.


Gilgamesh – a legendary hero

The Mesopotamians wrote on clay tablets. The tablets were then baked. Each tablet formed a page. 'Gilgamesh' is the most popular epic describing the tale of a legendary hero of that name. It was one of the earlies literary works. The first library in the world existed in Mesopotamia; here th books were classified according to their subjects.

Hammurabi's Code of Law


Hammurabi's Code of Law

The greatest king of Babylon was Hammurabi (1792-1750 BCE) who became famous for his Code of Laws. He suggested different punishments for those who committed an offence. The punishments depended on the nature and circumstances of crime and the position of the offender in society. These laws were 282 in number and carved on both sides of an eight feet high stone. It was placed in the temple of Marduk — the Sun God. It was the first instance of codification of laws. Hammurabi's code was a great step in making laws applicable to all the people of Mesopotamia. Other nations took inspiration from these laws and framed similar laws for their own governments.

DID YOU KNOW? The woman's head in the image is called the Warka Head. It is also known as the Lady of Uruk. It is a world famous piece of sculpture, admired for the delicate modelling of the woman's mouth, chin and cheeks.

Progress in Science

The Mesopotamians made great progress in the field of sciences. They were expert in mathematics, medicine and astronomy, and were the first to develop algebra and geometry. They used the figure of 60 for measuring time in hours, minutes and seconds. They were the first to divide a circle into 360° and the day and night into 12 hours each. Like the Egyptians, they invented a calendar of 12 months with 30 days each. They also gave different names to different stars.

Decline

After Hammurabi, the Hittites ruled from 1600 BCE to 750 BCE. The Assyrians founded an empire by 750 BCE. Nineveh became the finest city with vast palaces and magnificent temples. The Assyrian greatness came to an end when nomads destroyed Nineveh in the 7th and 6th centuries BCE. The Euphrates river, which was the life-line of this great civilisation, changed its course. The people migrated to other areas and the forces of nature eroded and buried this great civilisation.

AN EXCERPT

In the wide, dust-gold cradle of **Mesopotamia**, people learned something wildly new about being human: that memory could outlive breath. Cities rose where mud met sky, and soft clay became stubborn truth, pressed with tiny wedge-shaped marks so that promises, prayers, debts, and dreams would not vanish with the speaker. Farmers timed their lives to the mood of rivers; priests read meaning in stars; builders stacked earth into sacred mountains so the gods could find their way down. This was not just the birth of cities or kings—it was the birth of recorded thought itself: the quiet, brave decision to trap fragile human experience inside stone and soil, and tell the future, we were here—and we were trying to understand the world.

KEY LEARNINGS

- Mesopotamia (modern Iraq) means 'land between the rivers'.
- Their cities were divided into three parts— the sacred area, the walled city on a mound and the outer town. The sacred area had a temple of the patron god of the city. People lived in the walled city and outer area.
- Society was divided into three classes.
- The potter's wheel was used first by the Mesopotamians. They were the first to develop a system of writing called the cuneiform.
- The Mesopotamians had trade relations with many parts of the world, including the Harappan Civilisation.
- Hammurabi's Code of Law is the first systematic record of written laws.
- The Mesopotamian Civilisation came to an end around the 6th century BCE.

GLOSSARY

Dockyard : A place where ships are built and repaired.
Citadel : A raised portion like a fort or hill.
Granary : Place where grain is stored.
Terracotta : Baked clay used for making statues, etc.
Ziggurat : An ancient Mesopotamian temple.
Cuneiform : Mesopotamian script in wedge-shaped characters.
Codification : To arrange laws, principles, etc. in a systematic manner

Exercises

A. Multiple Choice Questions (MCQs)

1. Identify the facts about town planning of the Harappan civilisation

P : The upper town was built on a raised ground.

Q : Most of the buildings were five or six storeyed.

R : All the buildings were built of burnt bricks.

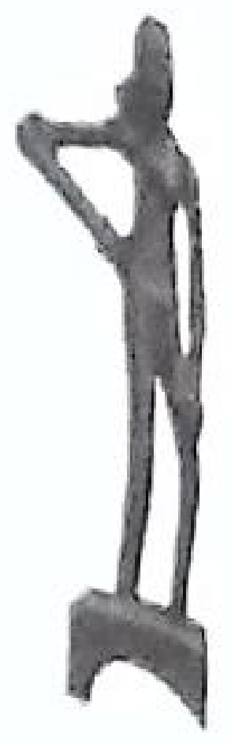
S : The ruling class lived at lower town

(a) P and Q (b) R and S (c) P and R (d) Q and S

2. Priyanka is preparing a project on the Indus Valley Civilisation. Which of the following sites would MOST LIKEL be part of her project?

(a) Lothal (b) Kalibangan (c) Banawali (d) All of these

3. Which of the following aspects is being depicted by the given picture?



(a) A school going girl (b) A silver figure of dancing girl

(c) A bronze figure of dancing girl (d) A golden figure of a woman

4. Lothal : Gujarat : : Kalibangan : ______________________.

(a) Madhya Pradesh (b) Rajasthan

(c) Himachal Pradesh (d) Uttar Pradesh

5. Consider the statements given below and choose the correct answer

Statement I : The Indus Valley Civilisation flourished between 2600 and 1900 BCE.

Statement II : Excavations at different sites show that the Indus Valley people led a highly advanced city life.

(a) Statement (I) is correct and statement (II) is incorrect.

(b) Statement (I) is incorrect and statement (II) is correct.

(c) Both statements (I) and (II) are incorrect.

(d) Both statements (I) and (II) are correct.

6. Which of the following options is incorrect about the drainage system of Indus Valley Civilisation?

I. Drains measuring about 30-60 cm deep ran into the main streets of the city.

II. The house drains emptied into a big pit outside the city.

III. The street drains were equipped with manholes.

Options:

(a) I and II (b) Only II (c) II and III (d) Only I

7. The Harappan people had trade links with other countries. Identify the appropriate reason for this assumption from the following options.

(a) Literary accounts of Mesopotamia reveal the trade links with the Harappans.

(b) Items belonging to other countries have been discovered from Harappan sites.

(c) Harappan seals have been discovered in Mesopotamia and Mesopotamian seals in Harappa.

(d) All the above.

8. Match the following columns:

Column I (Harappan sites)		Column II (States)
I.	Lothal	1. Punjab
II.	Kalibangan	2. Gujarat
III.	Alamgirpur	3. Rajasthan
IV.	Ropar	4. Uttar Pradesh

Choose the correct answer from the option given below:

(a) I-2, II-3, III-4, IV-1
(b) I-2, II-4, III-1, IV-3
(c) I-4, II-1, III-3, IV-2
(d) I-4, II-2, III-1, IV-3

9. Identify the facts about script and literature of Mesopotamians.

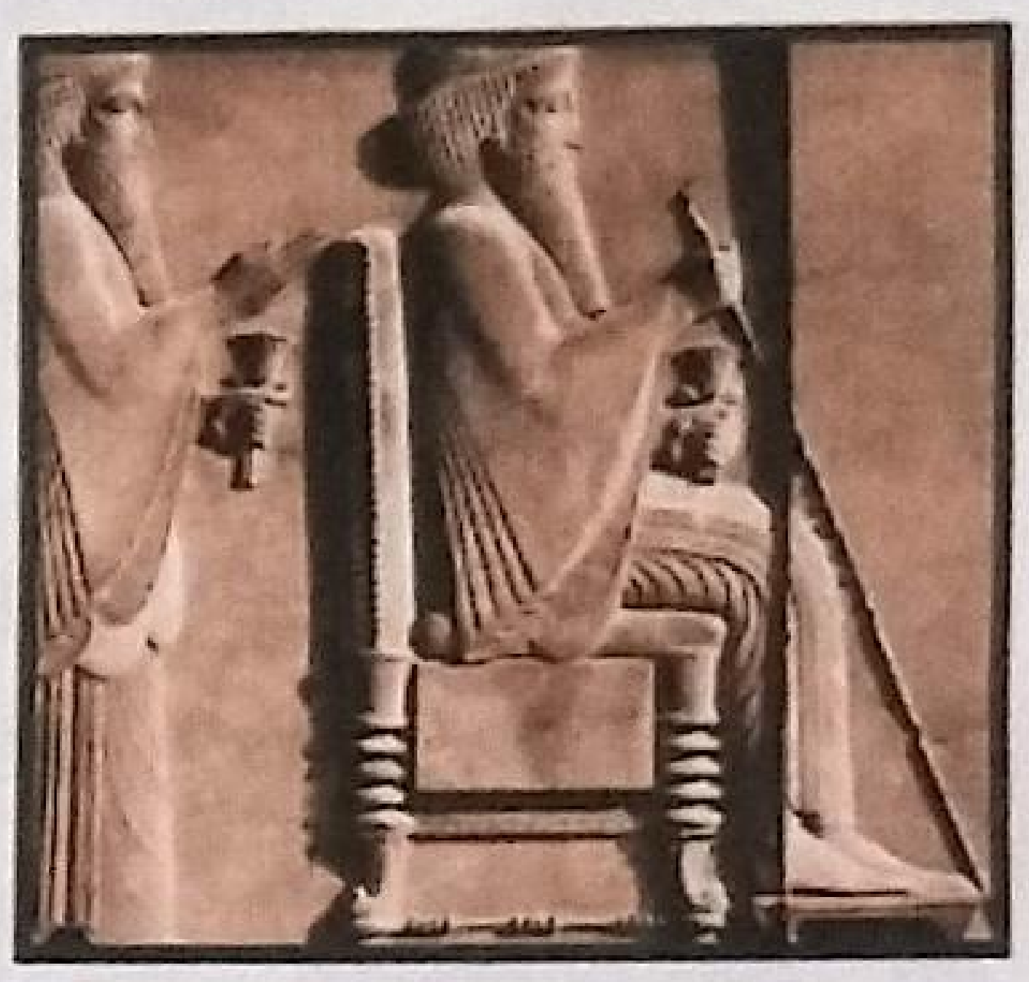
P : A system of writing known as Cuneiform.
Q : The script was wedged shaped.
R : The script was deciphered by John Prinsep.
S : The Toran was the most sacred book.

(a) P and Q
(b) R and S
(c) P and R
(d) Q and S

10. Sonali is preparing a project on Mesopotamian civilisation. Which of the following would most likely be part of her project?

(a) Hammurabi's Code of Law
(b) The Great Pyramid
(c) Hieroglyphics Script
(d) The Great Granary

11. Which of the following aspects is being depicted by the given picture?



(a) Founder of Mesopotamian Civilisation
(b) Architecture of the Hanging Gardens of Babylon.
(c) Hammurabi's Code of Law.
(d) Most popular epic describing the tale of a legendary hero.

12. Gilgamesh : The most popular epic : : The Ziggurat:

(a) Gardens
(b) Tombs
(c) Religious bathing place
(d) Temples

13. Harpreet is preparing a speech on important gods and goddesses of Mesopotamians. Which of the following gods she must mention in her speech?

(a) Enlil
(b) Enki
(c) Marduk
(d) All of these

14. Consider the statements given below and choose the correct answer.

Statement I: The Mesopotamians wrote on clay tablets.

Statement II: Each tablet formed a page.

(a) Statement (I) is correct and Statement (II) is incorrect.
(b) Statement (I) is incorrect and Statement (II) is correct.
(c) Both Statement (I) and Statement (II) are incorrect.
(d) Both Statement (I) and Statement (II) are correct.

B. Fill in the blanks.

1. The Indus Valley Civilisation was the ____________ civilisation of India.
2. Harappa is situated in ____________ district in Pakistan.
3. The Indus Valley Civilisation stood on the banks of river ____________.
4. The largest building discovered at Mohenjodaro is ____________.
5. ____________ metal was used by the people of the Indus Valley Civilisation.
6. The Sumerians developed a system of writing known as ____________.
7. In Mesopotamian society ____________ was the head of the family.
8. ____________ and ____________ were the two rivers of the Mesopotamia.
9. The second social class of Mesopotamian society consisted of ____________, ____________ and skille labourers.

C. Match the following columns:

Column A	Column B
1. Great Bath	(a) Most sacred animal
2. Harappan Civilisation	(b) Barter system
3. Humped bull	(c) Pashupati
4. Trade	(d) Mohenjodaro
5. Lord Shiva	(e) Bronze Age

D. Very short answer type questions.

1. Who discovered the Harappan civilisation and when?
2. Name some famous sites of the Harappan civilisation.
3. Name the two parts of Harappan towns.
4. Where was the great granary found?
5. From which site was the bronze figure of dancing girl discovered?
6. Name the gods of the Mesopotamian Civilisation.
7. What was the Ziggurat?
8. Which Mesopotamian monument is included in one of the seven wonders of the world?
9. Who was Hammurabi?
10. Name the most popular epic of Mosopotamian Civilisation.

E. Short answer type questions.

1. Describe the significance of the Great Bath.
2. Describe the governance and social divisions of the Harappan Civilisation.
3. Describe the agriculture of the Harappans.
4. What were the seals? Describe their significance.
5. What do you know about the Hanging gardens of Babylon?
6. What do you know about script and literature of the Sumerians?
7. Describe the causes of the decline of Mesopotamian Civilisation.

F. Long Answer Type Questions

1. Describe the town planning and the drainage system of the Indus Valley Civilisation.
2. Exaplain the Great Bath. Where has it been found? What was it used for?

3. Describe the religion of Indus Valley Civilisation.
4. Name the three social classes of the Indus Valley Civilisation.
5. What were the causes which could have brought about an end to the Indus Valley Civilisation?
6. What were the sources of the Mesopotamian Civilisation?
7. State the contribution of Mesopotamians in the field of science and architecture.
8. Why is Hammurabi famous in history?

Assertion-Reason questions.

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(c) (A) is correct but (R) is wrong
(d) (A) is wrong but (R) is correct

1. **Assertion (A) :** Harappa had six ganaries.
   Reason (R) : The granaries were used for storing grain.
2. **Assertion (A) :** Agriculture was the main occupation of Harappan people.
   Reason (R) : The Harappans did not know methods of irrigation.
3. **Assertion (A) :** Mohenjodaro was a well-planned city.
   Reason (R) : Mohenjodaro was situated close to the river Indus.

Case-based questions.

Lothal is a Gujarati word meaning 'mound of the dead'. Lothal was essentially a cultural site. The Harappans were attracted to Lothal not only for its dockyard but also for its bead-making industry. The city was divided into two parts– a citadel and a lower town. The citadel included baths, underground drains and a well for drinking water. The lower town was subdivided into two parts – the commercial sector and the residential sector. Lothal enjoyed a lot of prosperity owing to external trade. It produced chisels, spearheads, fishooks and ornaments which were supplied all over the western province.

1. Why is Lothal famous? **2.** What do you mean by a dockyard? **3.** Discuss the trade of Lothal.

Map skill based question

1. On an outline map of India, locate and label the following Harappan sites — Harappa, Mohenjodaro; Lothal, Ropar, Kalibangan, Alamgirpur, Rangpur.
2. On an outline map of Mesopotamia, locate and label the following sites — Babylon, Gozan, Nineveh, Akkaad

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6

Egyptian and Chinese Civilisations

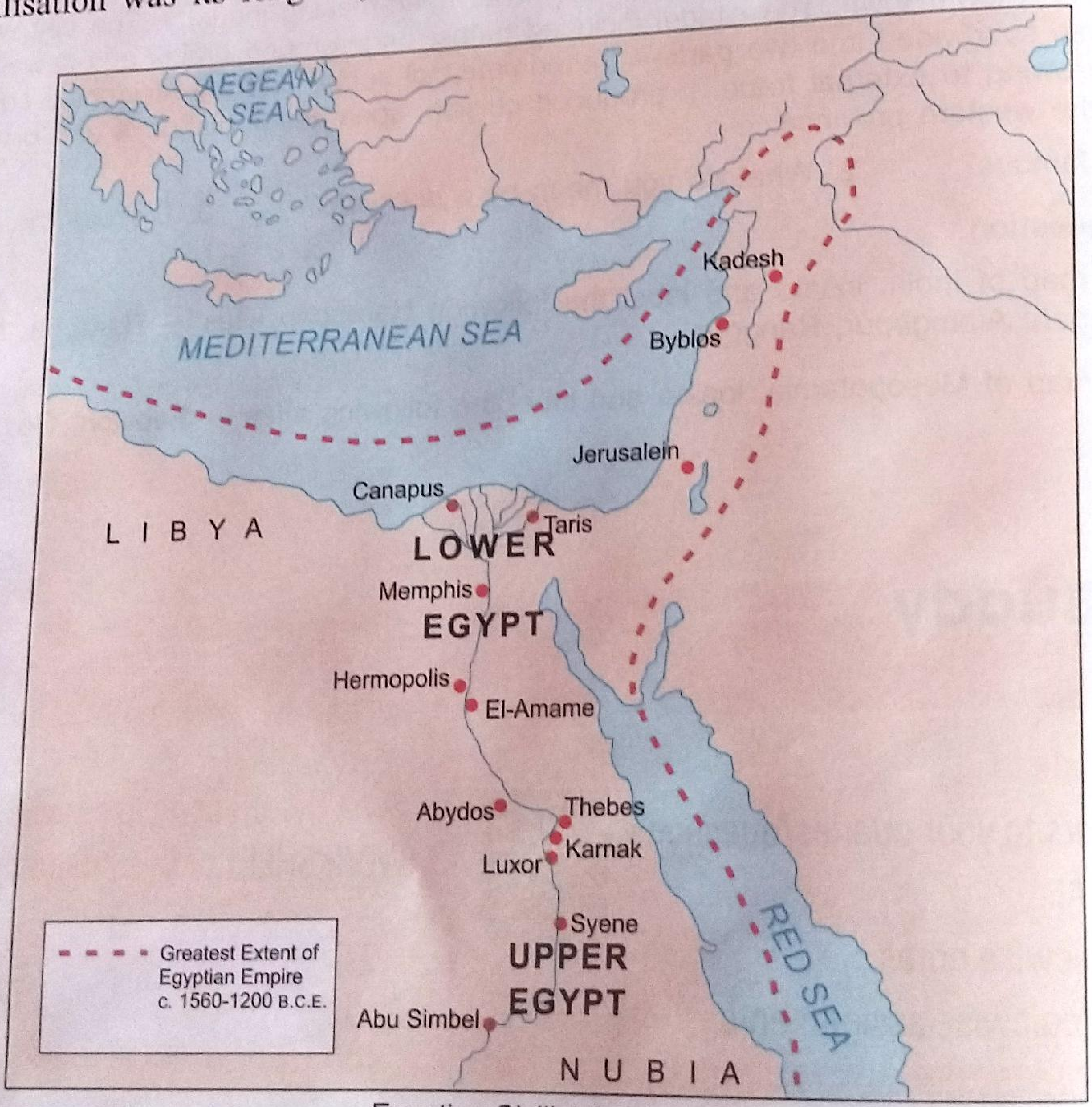
KEY CONCEPTS

- Egyptian Civilisation — Location and sources, society, economy, town planning, religion, contributions.
- Chineese Civilisation — Location and extent, dynasties, religion, economy, contributions.

THE EGYPTIAN CIVILISATION

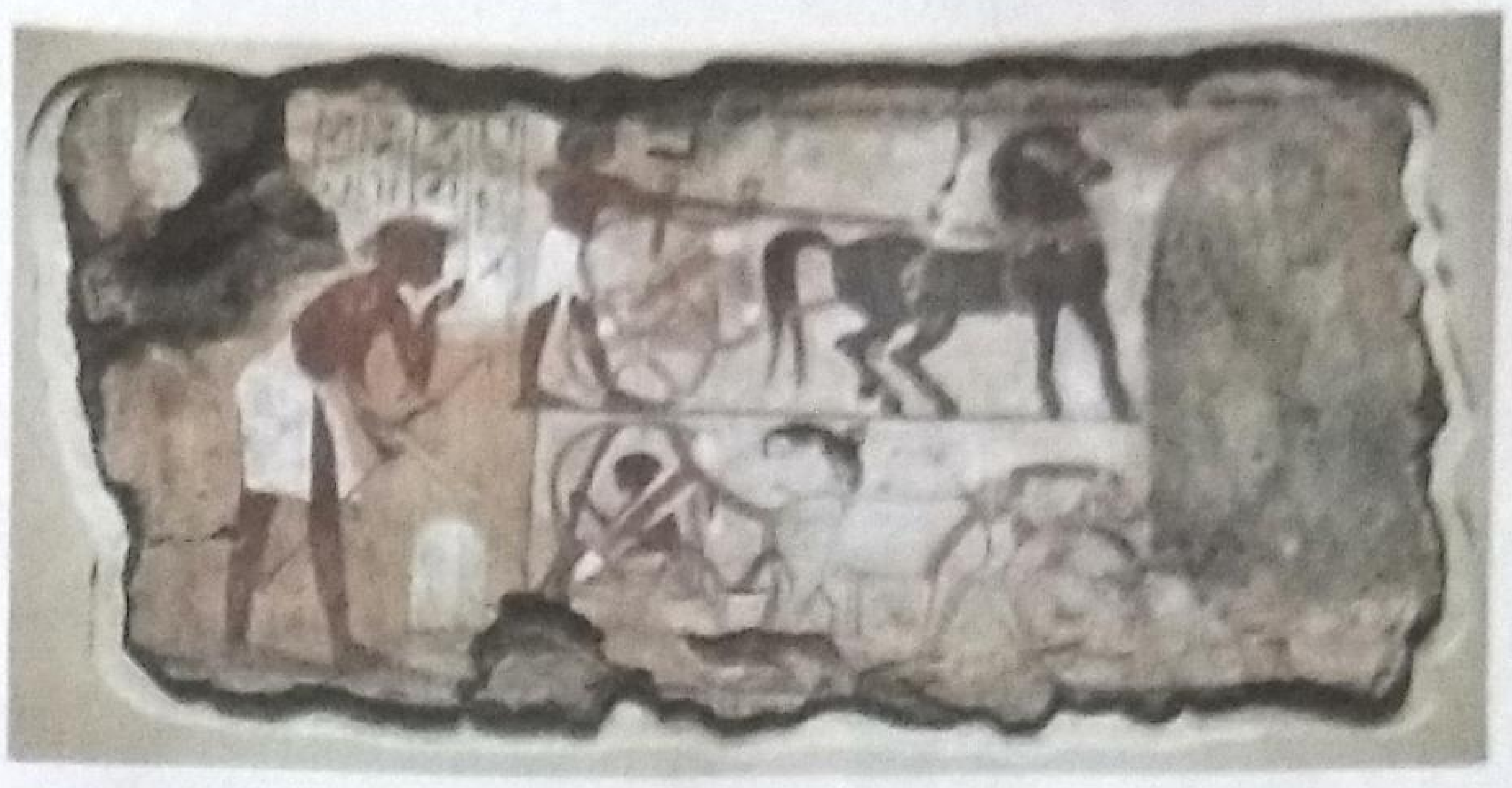
Location and Sources

People along Africa's Nile River formed a rich and prosperous civilisation. The most remarkable quality the Egyptian Civilisation was its longevity. It lasted for more than 2,000 years and left a lasting influen on the world.


AEGEAN SEA
MEDITERRANEAN SEA
Kadesh
Byblos
Jerusalem
Canapus
Taris
LIBYA
LOWER
Memphis
EGYPT
Hermopolis
El-Amame
Abydos
Thebes
Karnak
Luxor
Syene
UPPER
EGYPT
Abu Simbel
NUBIA
RED SEA
Greatest Extent of Egyptian Empire c. 1560-1200 B.C.E.

Egyptian Civilisation

Egypt is located in the northeastern part of Africa. The Egyptian Civilisation is one of the oldest River Valley Civilisations. It flourished on the banks of the river Nile, which flows along the entire length of Egypt. Without the river Nile, Egypt would have been a desert. There is hardly any rainfall in Egypt. Egypt is therefore called the "Gift of Nile".



Painting — Nile Valley Civilisation

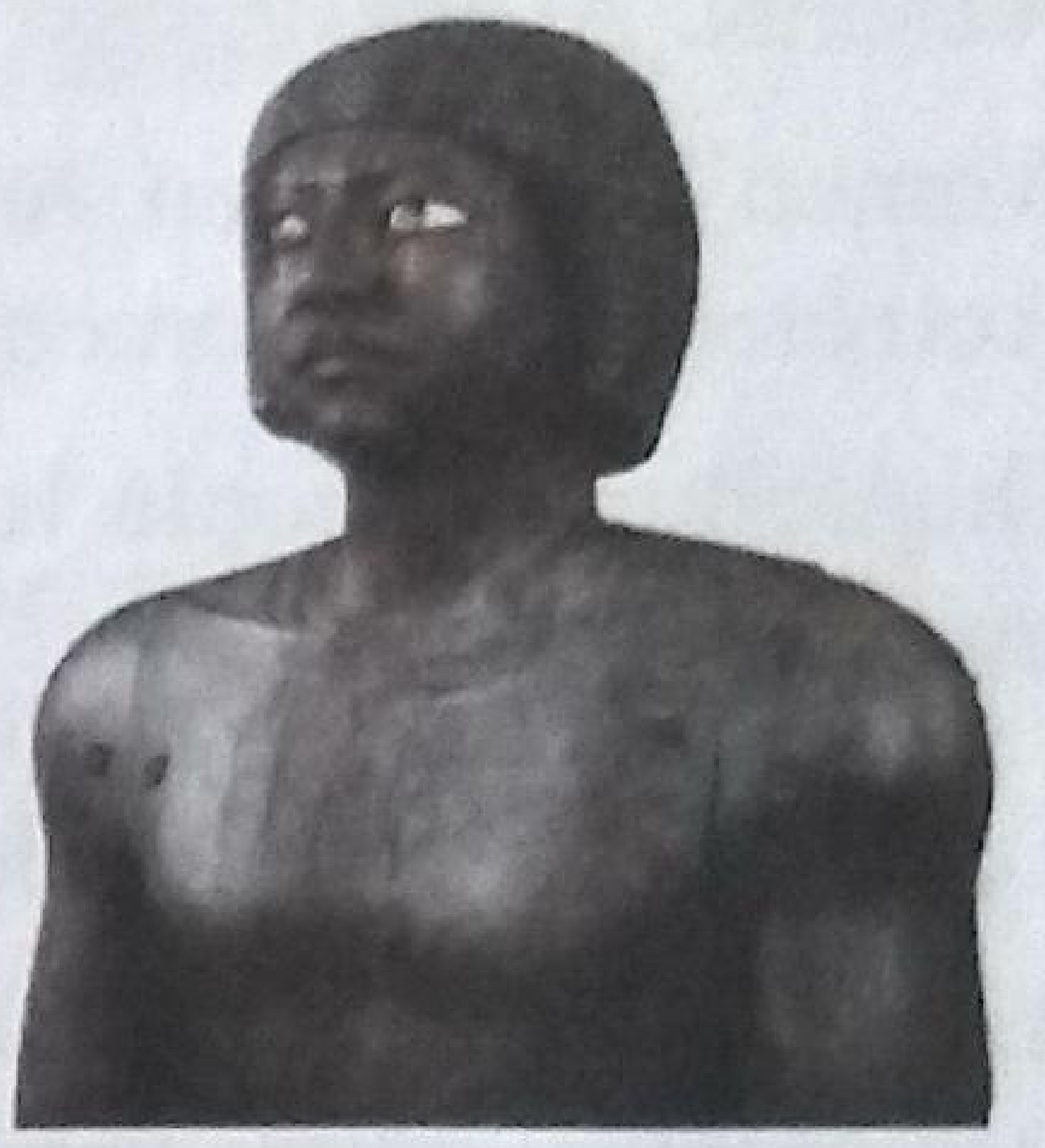
Statue of Ushabti of Urmi with inscription

Historians have based their knowledge of ancient Egyptian Civilisation on the inscriptions and official documents that they have discovered. These documents are preserved even today. Archaeological excavations have brought to light several objects, for example, utensils, art objects, buildings, etc.

Kingdoms

Egyptian history is divided into three periods :

- **The Old Kingdom — (3000 BCE – 2000 BCE):** This is known as the period of the pyramids.
- **The Middle Kingdom — (2000 BCE –1750 BCE) :** During this time trade expanded. Its end came about with the invasion of Hyksos who conquered the Egyptians
- **The New Kingdom — (1570 BCE – 1069 BCE)** : This period lasted for about 5 centuries after the Egyptian kings regained their lost territory. This period saw great heights and the grandeur of the Egyptian kings reached its peak.



Old kingdom statue — Saqqara

DID YOU KNOW?

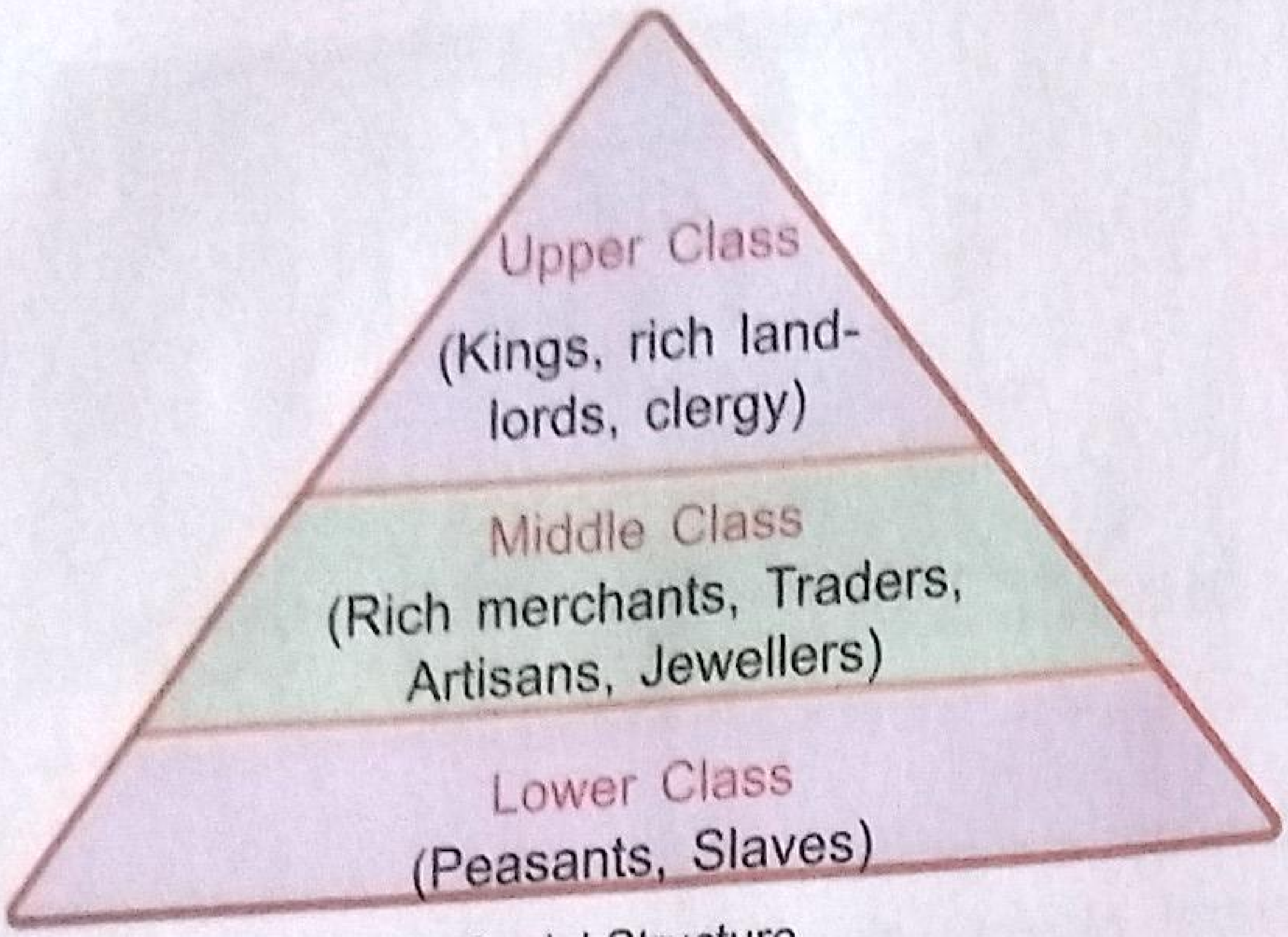
Greek historian Herodotus named Egypt "The Gift of the Nile." The river Nile flooded annually. When the water receded, it left behind a rich deposit of fertile, alluvial soil on its banks which was a boon for the Egyptian farmers. The Egyptians built an elaborate network of canals, dams, dykes and reservoirs for irrigation. The river Nile also served as a highway for promoting trade and commerce.

Society

There were three distinct classes in the Egyptian society. The king had unlimited powers and was the political and religious head of his people. He was called the **Pharaoh**. He was considered to be God's representative on earth, and his statues were installed in the temples. The people worshipped him as a God.

The other privileged classes were the higher clergy, the rich landowners and government officials. The rich people lived in luxury; they lived in palatial houses which were decorated beautifully. They led a comfortable life and got all their work done by their servants. Precious jewellery and costly clothes were worn by them.

Pharaoh


Upper Class
(Kings, rich land-lords, clergy)
Middle Class
(Rich merchants, Traders, Artisans, Jewellers)
Lower Class
(Peasants, Slaves)

Social Structure

Engage and Reflect

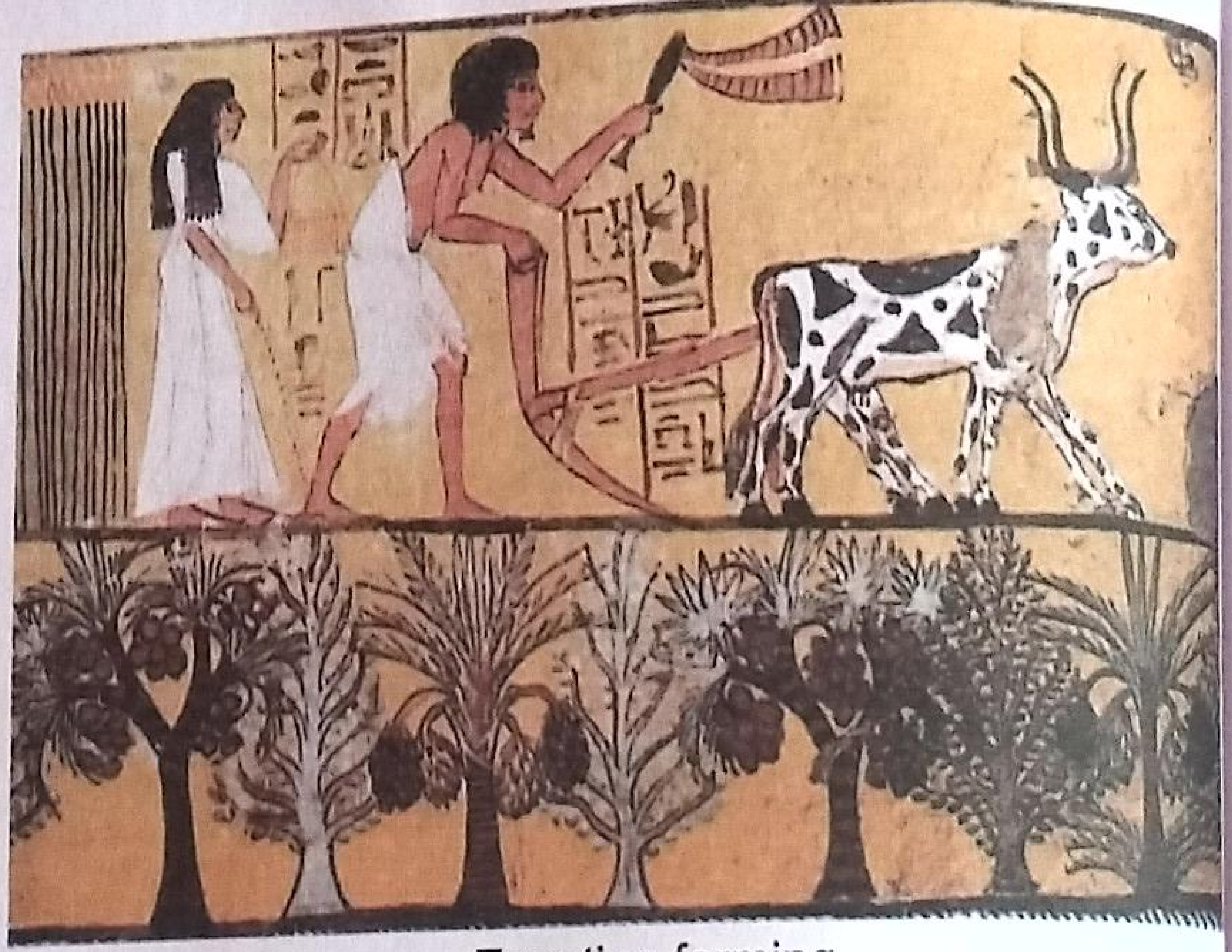
The temples in Egypt contain statues of the Pharaohs. Discuss why it was common practice in ancient Egypt to put statues of Pharaohs in temples.

The middle class included the rich merchants, traders, skilled artisans, jewellers, etc. Teachers, doctors, an writers were also included in this class. The majority of Egyptians belonged to the lowest class comprisin peasants. At the lowest rung of the social ladder came the slaves, a majority of whom were prisoners of wa

Women were given respect. Though the family was patriarchal, it was made sure that their rights wer protected. Rich women led a luxurious life but women of poor families worked hard.

The common people led a difficult life. They had to work for the rich for their survival and had to live i small houses.

Economy and Family



Egyptian farming

Agriculture was the chief occupation of the Egyptians. Other important occupations were manufacture of weapons, furniture, jewellery, perfume, glassware and pottery. Trading was also given importance. Trade was both internal and foreign. Internal trade was carried on by road whereas foreign trade was carried on by sea.

Wheat and linen were sent to Europe and Asia, and timber and weapons were brought from there.

The society was patriarchal. The father was the head of the family. Women were given freedom and respect, and enjoyed many rights. They would inherit property and even take the reins of power in their hands. For example, the legendary Queen Cleopatra, was known for her beauty and intellect. Children were given freedom and had opportunities for enjoyment. The girls helped in the household chores. The staple diet of the Egyptians was wheat and bread. Fruits, vegetables, dairy products and meat were also eaten.

Town Planning

The proximity to a water source and the height at which a town was built above the Nile to prevent floods, were the two key considerations in town planning.

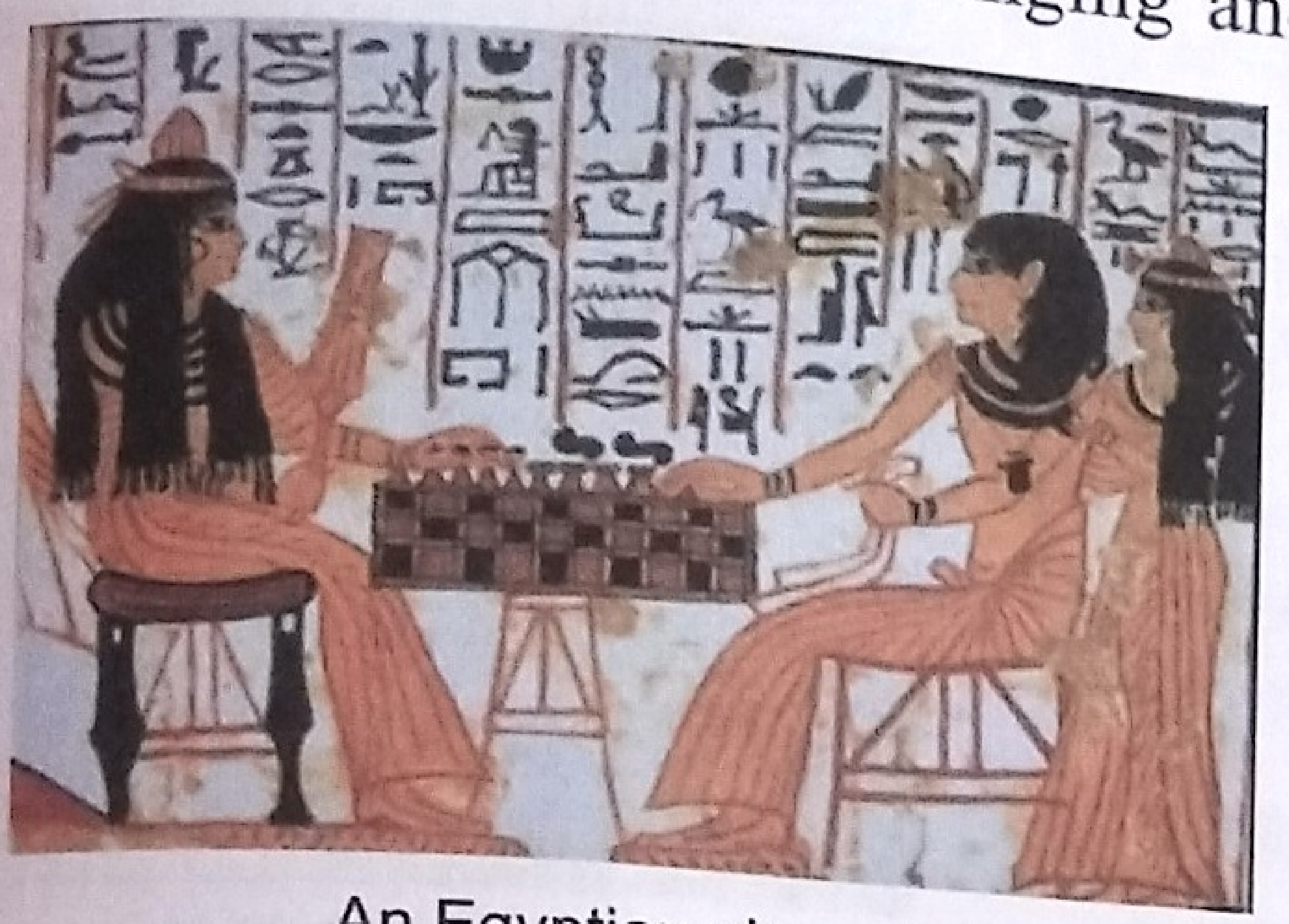
Typically, towns had a boundary wall with only one or two entrances through the wall. Houses were constructed along the edges of the streets, sharing walls with their neighbouring houses.

Town planning in ancient Egypt

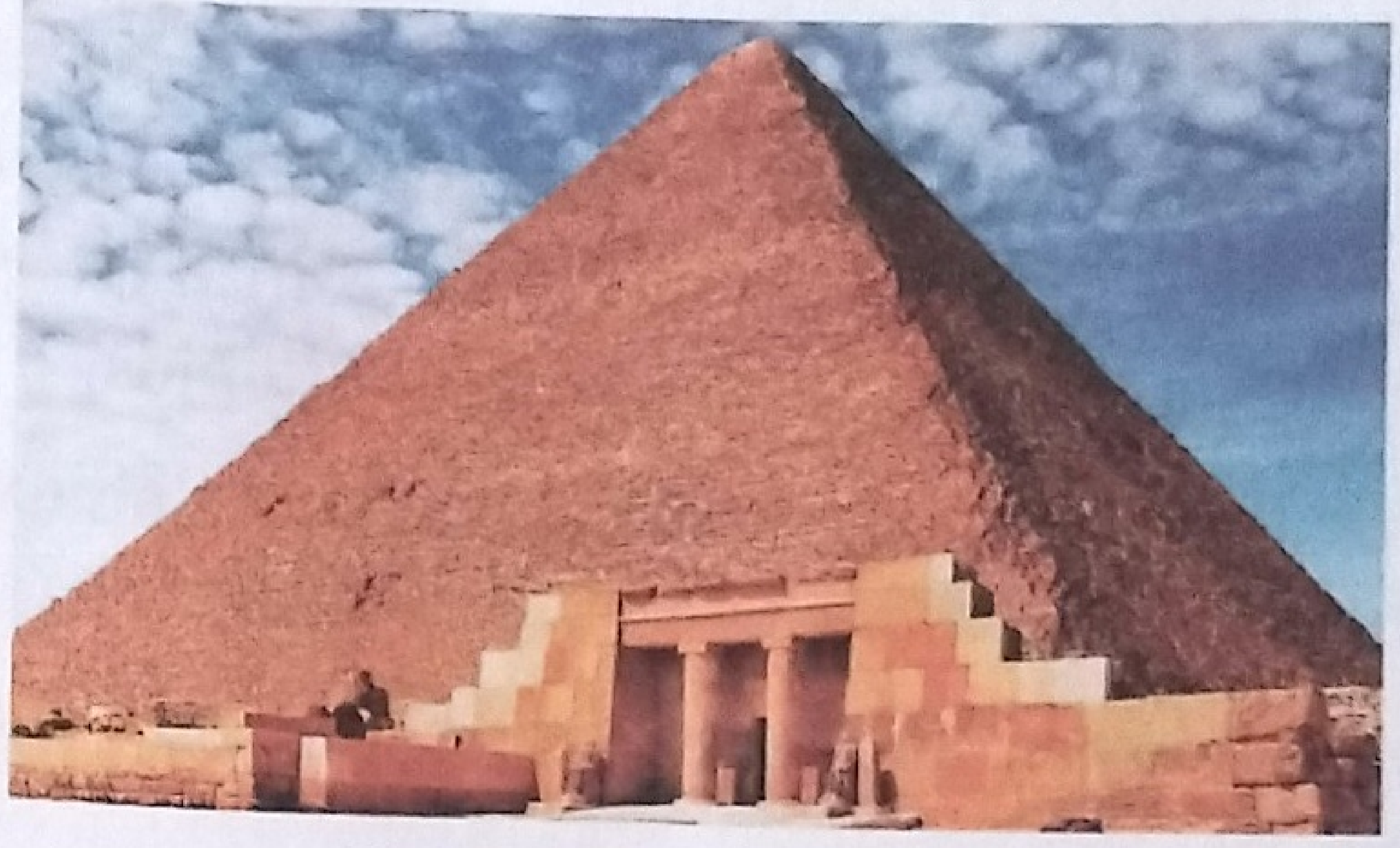
Cities were divided into Upper (Southern) and Lower (Northern) regions. The city was divided into blocks or grids by a few broad parallel streets running from north to south that were intersected at right angles by narrow streets.

Recreation

Chess was the game Egyptian played for recreation. They also played musical instruments such as Harps, flutes, drums. They knew the art of singing and dancing. Hunting and fishing were popular pastimes.



An Egyptian chess board



The Great Pyramid, Egypt

Religion

Egyptian worshiped gods and goddesses connected with nature. The Sun God **Ra** was the most important god. (The Pharaoh was considered the Son of Ra.) Some gods were represented by symbols such as the falcon, crocodile, etc. Some other gods were Isis, Osiris, Horus, Anubis and Amon.

The Egyptians believed in life after death. They believed that the body should be preserved so that the soul might live on within it. They developed the art of preserving the body to great perfection — a process called **mummification**.

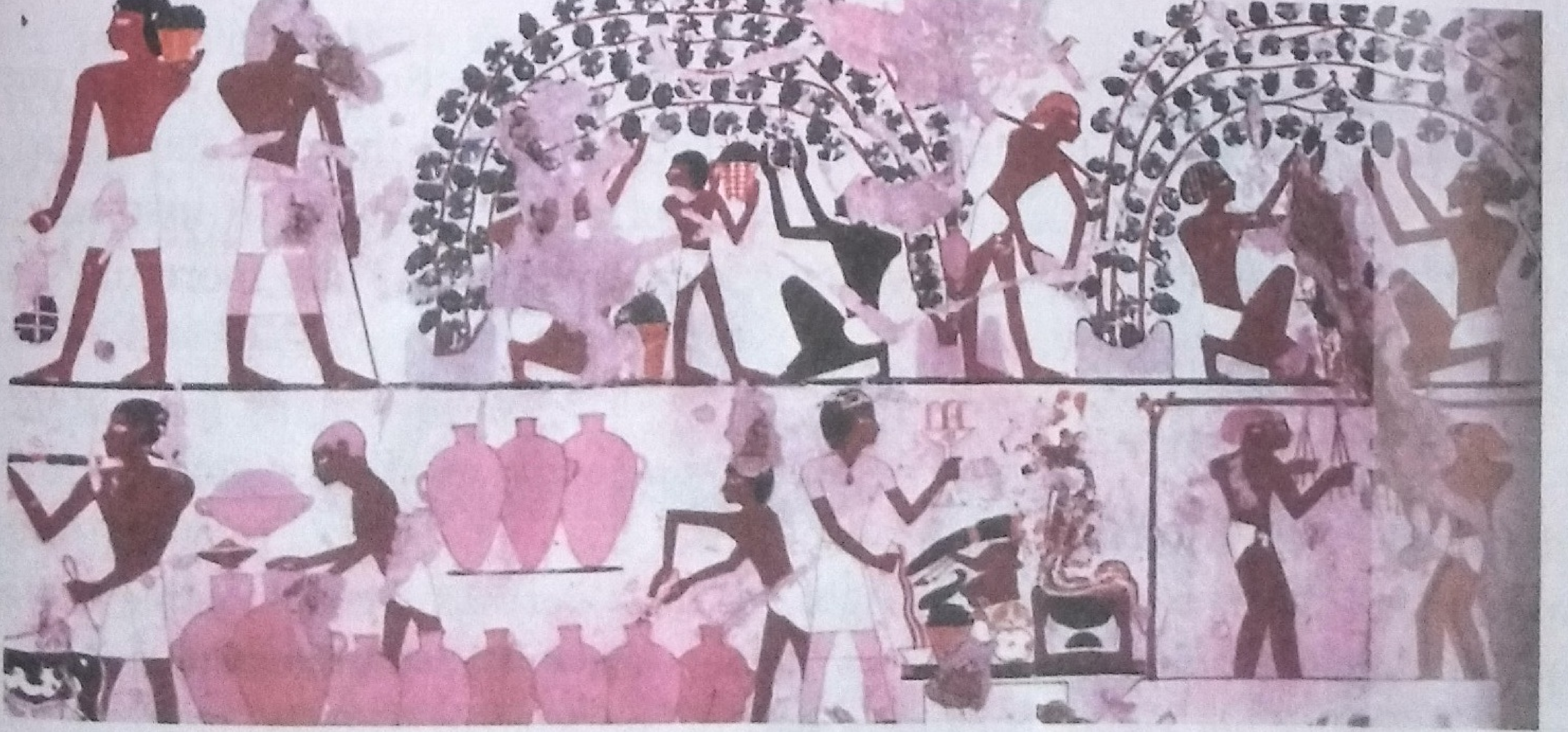
The embalmed body (mummy) was placed in a coffin and put in a pyramid. Many objects which were used by the dead person were also placed in the pyramid with the belief that the dead person might need them. Osiris — the lord of the after-life — was an important god worshipped by the Egyptians. The pyramids were the tombs of Pharaohs.

An Egyptian Mummy

Contribution of the Egyptians

Pyramids

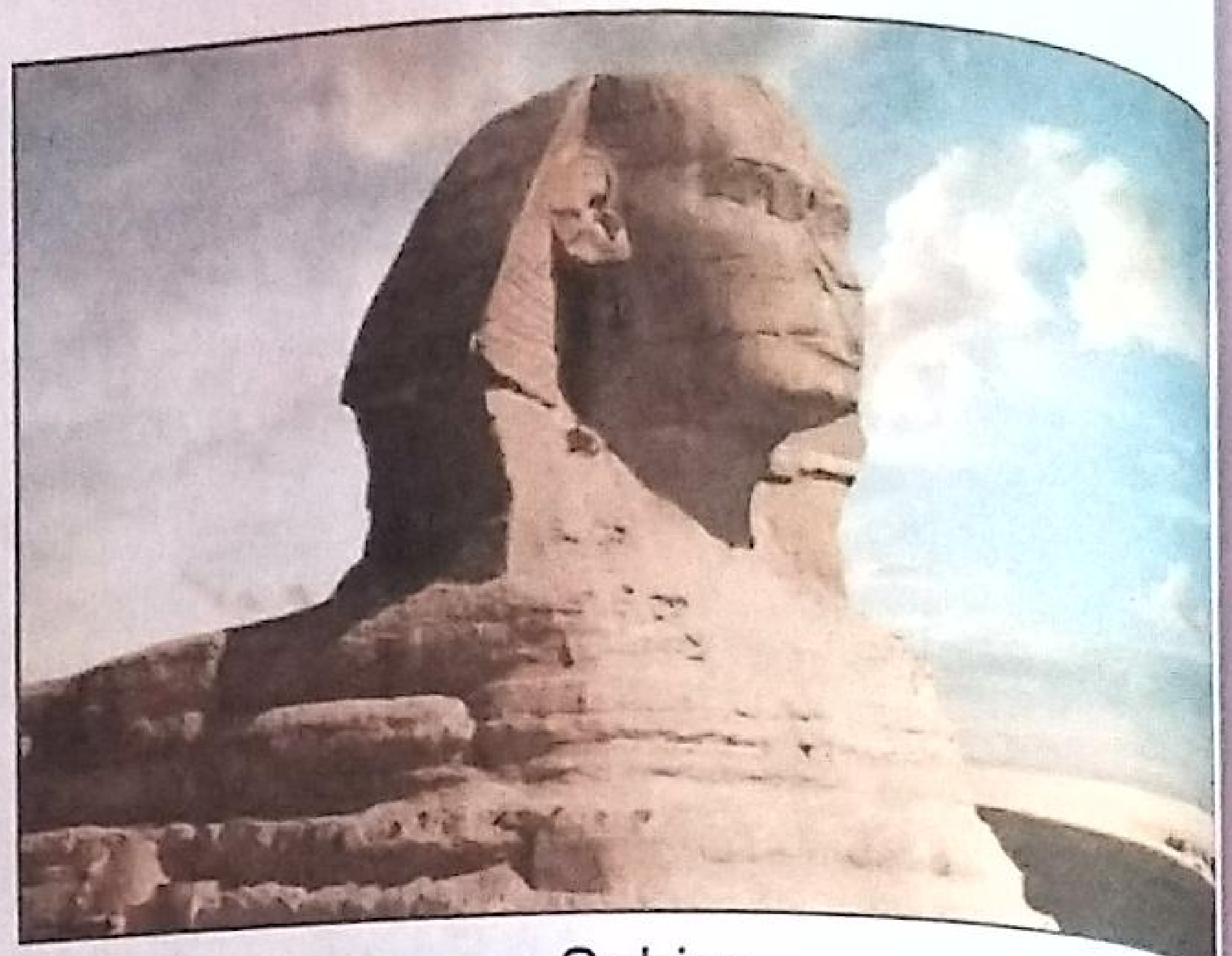
The most impressive monument of the Egyptians are the **pyramids**. They are large triangular structures.



Painted around 1500 BCE, the wall of a tomb at Thebes is decorated with scenes illustrating daily life in ancient Egypt.

The two most famous and spectacular ones are situated at Giza (Gizeh) near Cairo. The largest of the pyramid the Great Pyramid was built by Pharaoh Cheops (Khufu) in 2650 BCE. It is one of the seven wonders of th world and took 20 years to be built. The tomb of King Tutankhamen was found intact in the 1920s.

Pyramids were the tombs of Pharaohs. They contained mummies, clothes, jewellery and many precious item When a pharaoh died, his embalmed body (mummy) was kept inside the pyramid. It was protected an preserved so well that it has survived for hundreds of years.



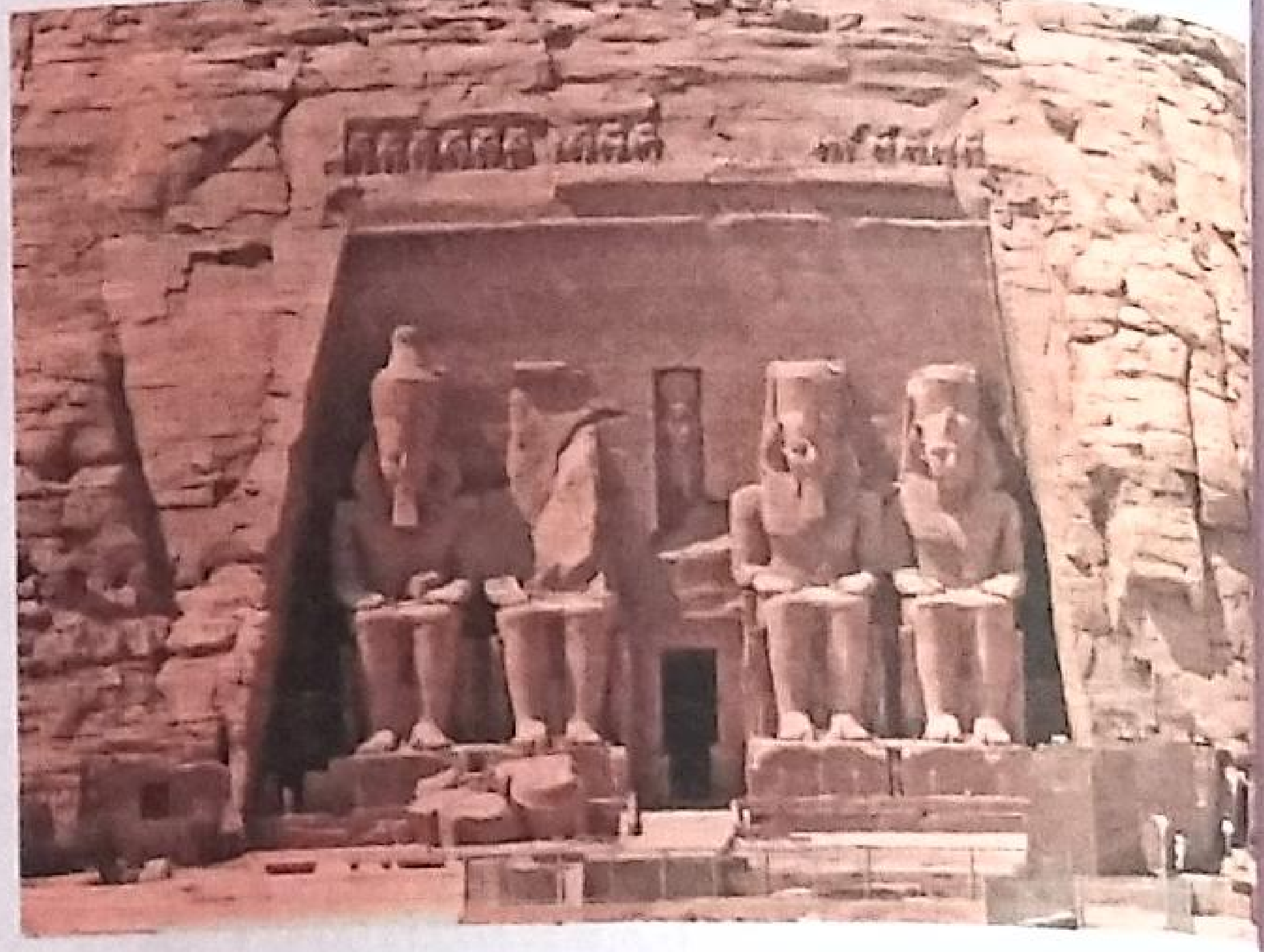
Sphinx

The Sphinx

It is a fine example of Egyptian sculpture. It is a mythological animal with the body of a lion and the head of a man. It is carved out of a single stone. It was meant to guard the pyramids.

The most remarkable among them is the Great Sphinx at Giza which is 240 feet long and 66 feet high.

The temples at Karnak and Abu Simbel are very impressive and awe-inspiring.



Temple of Abu Simbel

Egyptian Script

The Egyptians developed a kind of picture writing known as hieroglyphic, which means sacred or holy writing. The word 'Hiero' means 'holy' and 'glyphics' means writings. Therefore, Hieroglyphics means "Holy writings". Pictures and signs represented their ideas. It had about 500 signs. The Egyptians used pens made of reed. Ink was made of gum and soot.

They wrote on the bark strips of a plant called **papyrus**. The word 'paper' has its origins in the word papyrus.

Mathematics, Science and Medicine

The Egyptians made great progress in arithmetic. They knew about addition, subtraction, multiplication an division. They were aware of decimals and fractions. They could measure areas, volumes and distances.

They had made great progress in the field of medicine. One of their medical books gives a detailed descriptio of blood-circulation system. The achievement of the Egyptians in the field of medicine can be proved by th fact that the mummies, kept thousands of years ago, are still well preserved.

Astronomy

The Solar Calendar has been one of the greatest achievements of the Egyptians. They needed an accurat knowledge of seasons, rains and floods for their farming. They observed that the star *Sirius* appeared on th horizon when the floods reached Cairo and this happened after every 365 days. It inspired them to make th first known calendar of 365 days in a year of 12 months, each of 30 days; five more days were added to th calendar for celebration of religious festivals.

Decline

Egypt prospered during the period of the new kingdom. But by 1000 BCE, Egypt fell on bad days. It wa conquered by new powers. The Pharaohs had to fight for their very existence against the invaders from th regions to the south of Egypt in Africa and the new powers across the Mediterranean Sea. The last ruler Egypt was Cleopatra, and after her Egypt became a part of the Roman Empire.

DID YOU KNOW? Tutankhamen was an Egyptian Pharaoh who ruled for a short duration. He started ruling at the age of 9, that is why he was nicknamed "Boy-King". He died at the age of 18. His tomb discovered in 1922, made "King Tut" one of Egypt's most famous Pharaohs.

AN EXCERPT

Along the slow, breathing curve of the Nile, ancient Egypt rose like a long-held prayer to the sun—stone by stone, name by name, century by century. It was a civilization that learned how to read the sky and shape the earth, turning flood and desert into rhythm, harvest, and order. In temples washed with gold light and in tombs sealed for eternity, the Egyptians wrote their deepest certainty: that life was not a brief accident, but a carefully woven passage between worlds. Their art refused decay, their kings chased the horizon of immortality, and their gods walked beside ordinary people in fields, homes, and dreams. Ancient Egypt endures not because its monuments are vast, but because its imagination was even larger—bold enough to believe that memory itself could defeat time.

KEY LEARNINGS

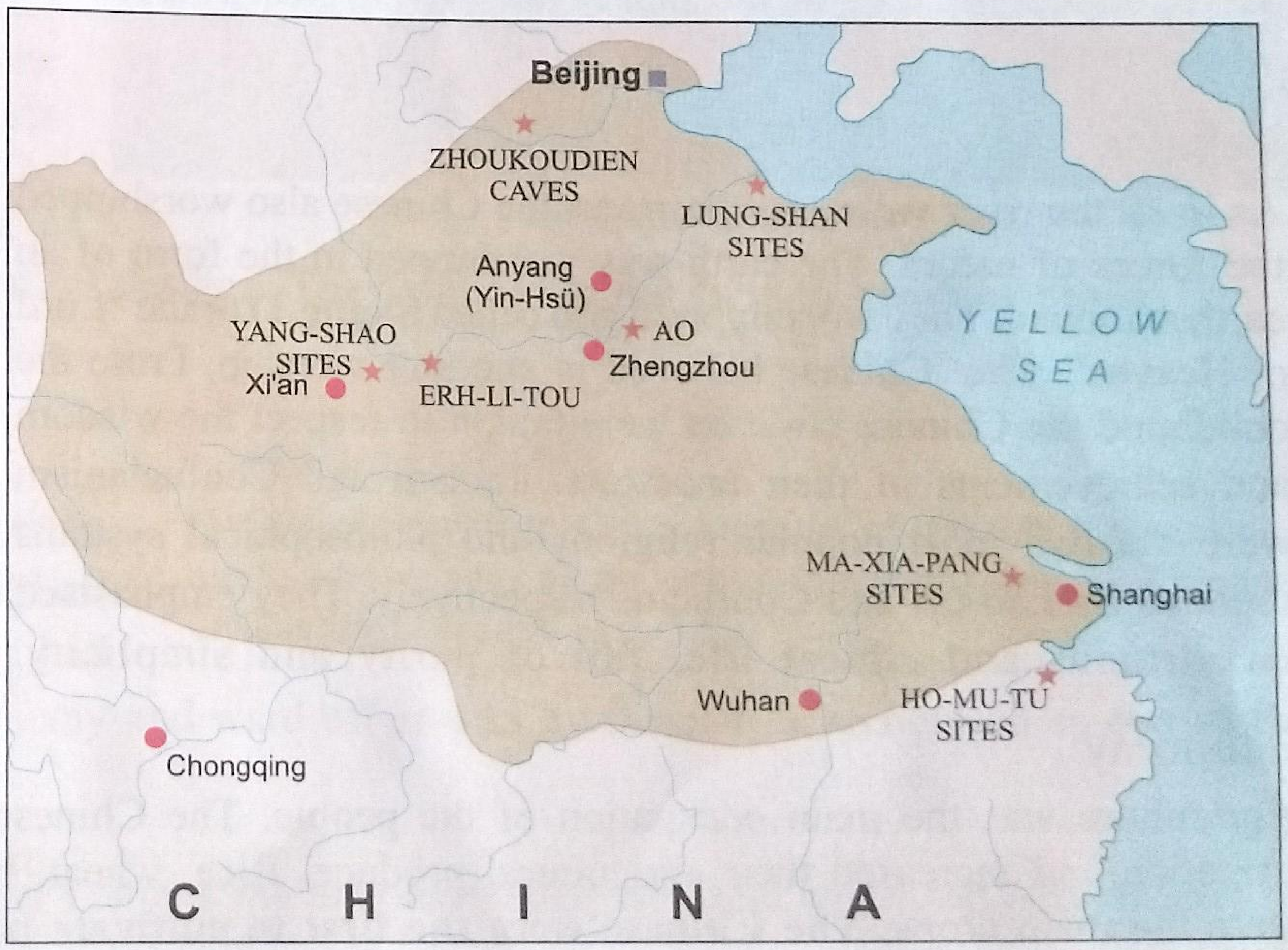
- The Egyptian Civilisation is one of the oldest River Valley Civilisations which was located in northeastern part of Africa on the banks of River Nile.
- Contribution of the Egyptians:
  - Developed picture writing known as hieroglyphic, wrote on papyrus.
  - Pyramids, Sphinx and temples at Karnak and Abu Simbel are the examples of Egyptian architecture and sculpture.
  - They knew the four basic operations of arithmetic — addition, subtraction, multiplication and division.
  - Great progress in medicine — a book on blood circulation.
  - The Calendar was their greatest contribution. They observed that the star Sirius appeared on the horizon at Cairo when there were floods exactly after 365 days. This inspired them to divide 365 days into 12 months of 30 days each.

THE CHINESE CIVILISATION

The history of Chinese Civilisation can be traced back to over 4,500 years. It was one of the oldest and long lasting civilisations of the world. However, China is different from the other civilisations. The culture that developed in ancient China became the culture of China that exists today.

Extent of the Civilisation

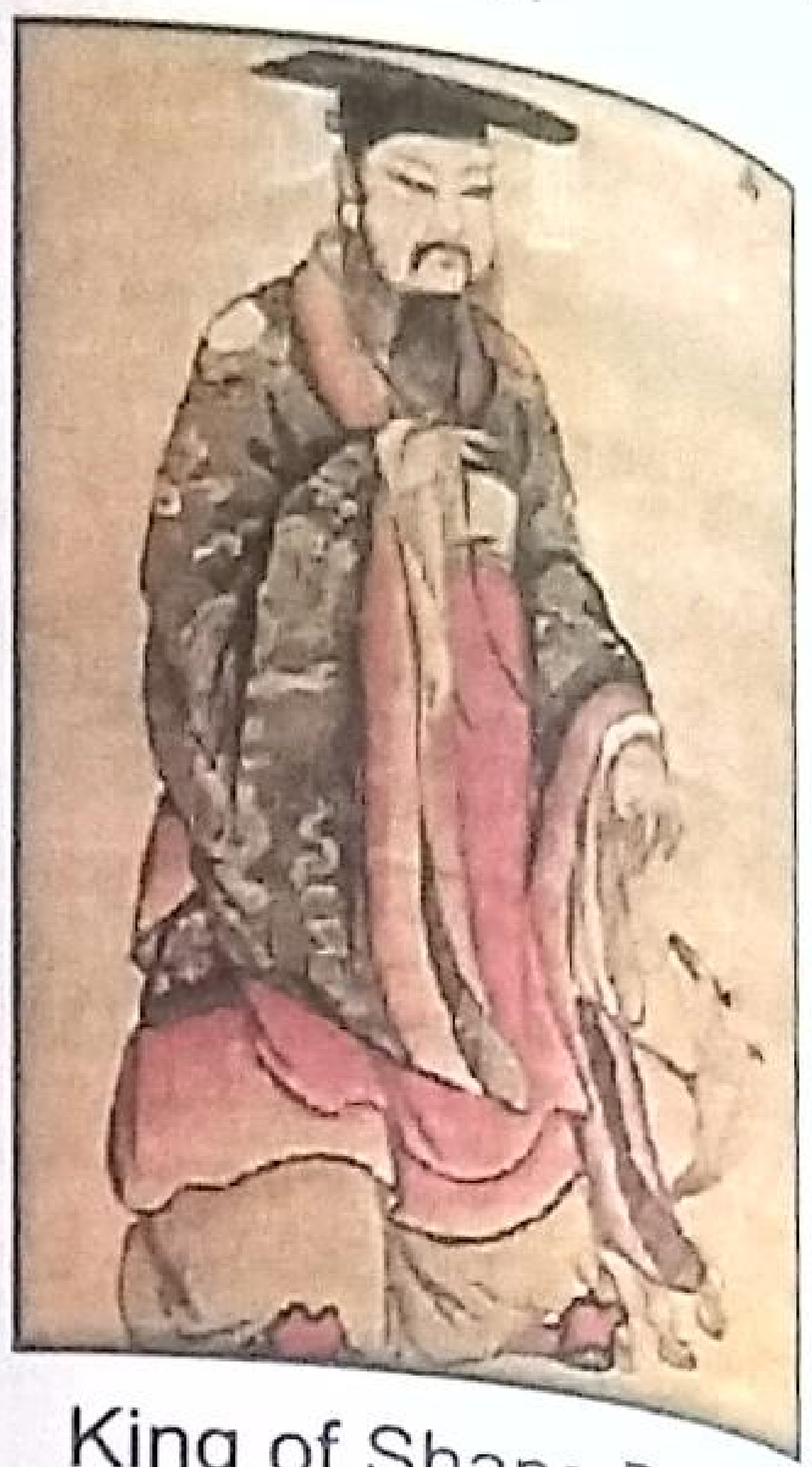
The Chinese Civilisation flourished on the banks of river Hwang Ho. Hwang Ho means Yellow River. Like all the other rivers, Hwang Ho brought rich soil and provided abundant water for cultivation. But unlike other rivers,



Shang Dynasty

Hwang Ho often changed its course after the floods. This led to the destruction of crops and the canals. Peopl living on its banks faced many difficulties. For this reason Hwang Ho is also called "Sorrow of China". Fro early times the Chinese built dykes and embankments along this river to control floods. Fertile soil, abundan water, a temperate climate and waterways helped the Chinese Civilisation to progress and flourish.

Chinese Dynasties



King of Shang Dynasty

Throughout most of China's history, it was ruled by powerful Dynasties. They ruled China for over 3,000 years. The Chinese Civilisation is classified according to the dynasties that ruled them.

- Shang dynasty – 1600 BCE to 1046 BCE
- Chou or Zhou dynasty – 1046 BCE to 256 BCE
- Qin dynasty – 221 BCE – 206 BCE
- Han dynasty – 206 BCE – 220 CE

DID YOU KNOW? The Hwang Ho River is the third longest river in Asia and sixth longest river in the world. It is called yellow river because huge amount of silt and sediment turn the water into yellow colour.

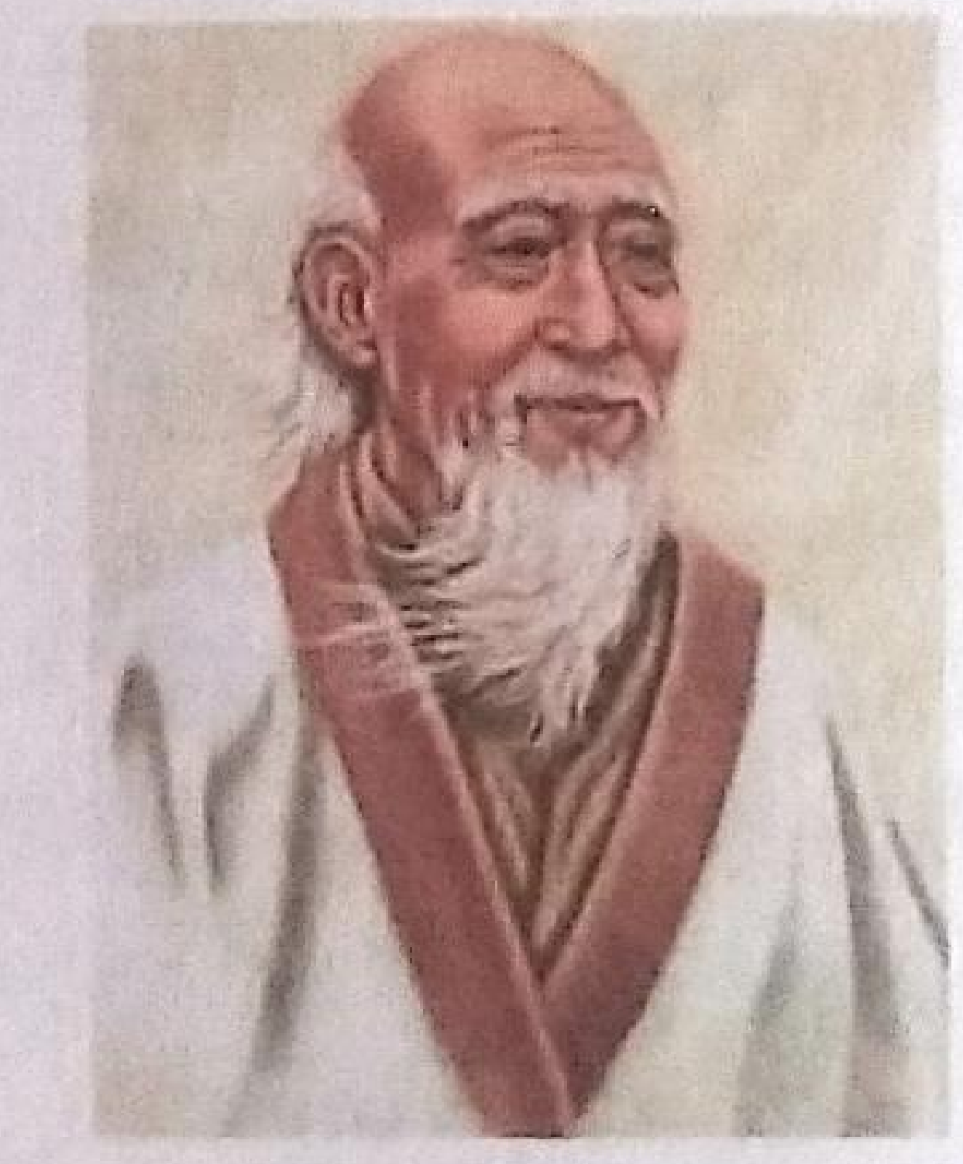
The Shang dynasty ruled from 1600 BCE to 1046 BCE. The next dynasty that rose to power was the Chou or Zhou dynasty. They ruled from the eleventh century till the third century BCE. The Chou period is known as the classical period of China, because during this period culture developed to great heights. During the periods of all these dynasties, the basic character of the Chinese society remained almost the same.

Society

Bronze Bowl, Zhou Dynasty

The king was all powerful. Under him were many classes of people. Noblemen were the next in importance who helped the king during war and conquests. Under them were the merchants, craftsmen, farmers and slaves. People respected their elders and ancestors. They formed clans, and family was a sacred unit. The head of the family was given great respect. Women worked within the house only.

Religion



Lao-tze

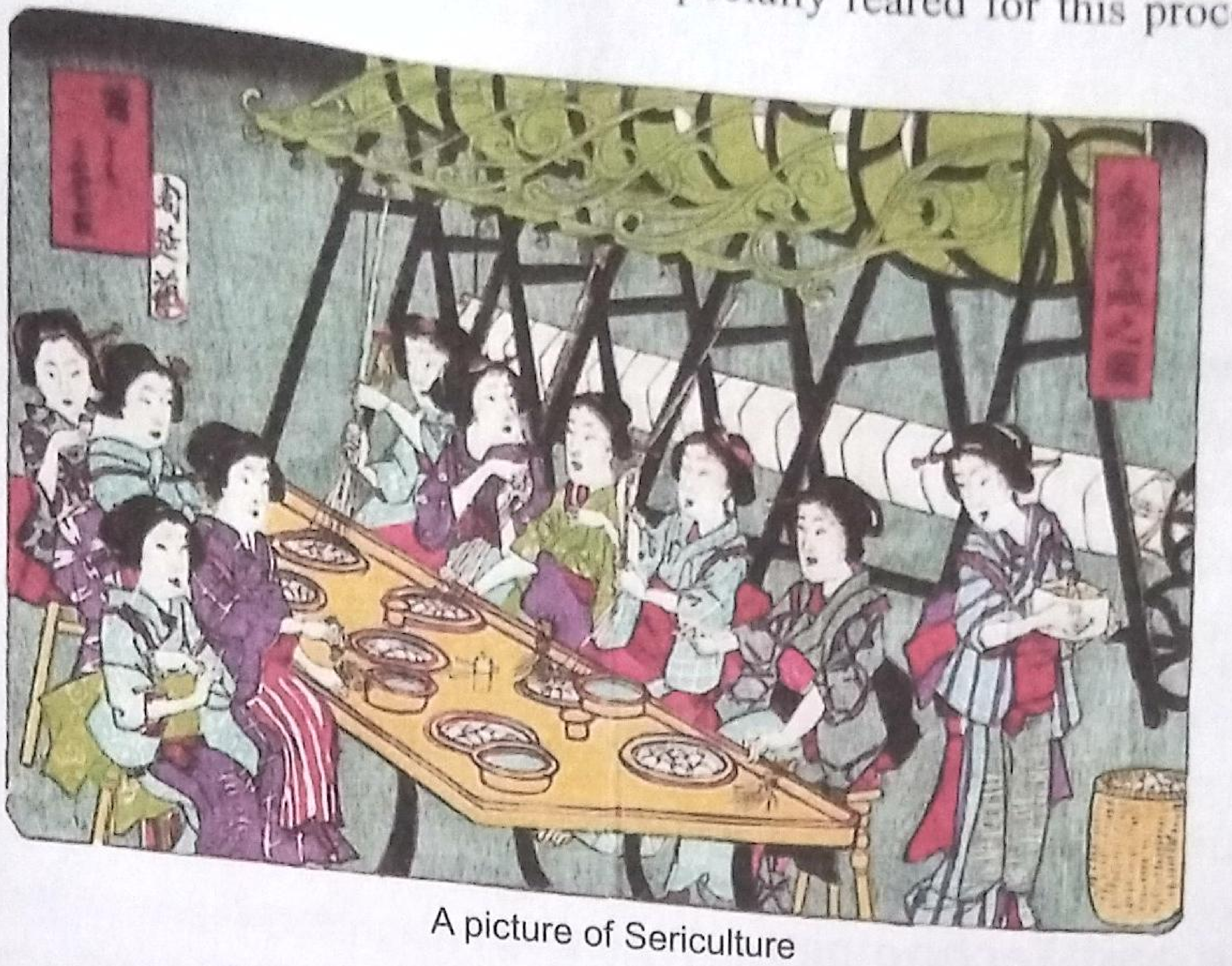
Confucius

As in all the river valley civilisations, the Chinese also worshipped the forces of nature. The earth was worshipped in the form of an earthen mound. They worshipped a god called **Shang Ti** or the "Lord of Heaven". The Chinese believed in ancestor worship. From the childhood the Chinese children were taught to respect the wisdom and achievements of their ancestors. Taoism and Confucianism were the two most popular religions and philosophical systems founded by Lao-tze and Confucius respectively. They emphasised on virtuous and ethical life, full of purity and simplicity.

Economy

Agriculture was the main occupation of the people. The Chinese developed a highly organised network of irrigation and increased their agricultural produce. Rice, wheat, barley, sorghum, millets, soyabeans and tea were the main crops. **The Chinese were the first to cultivate tea**. The cultivation of tea in other countries began only in the 18th century.

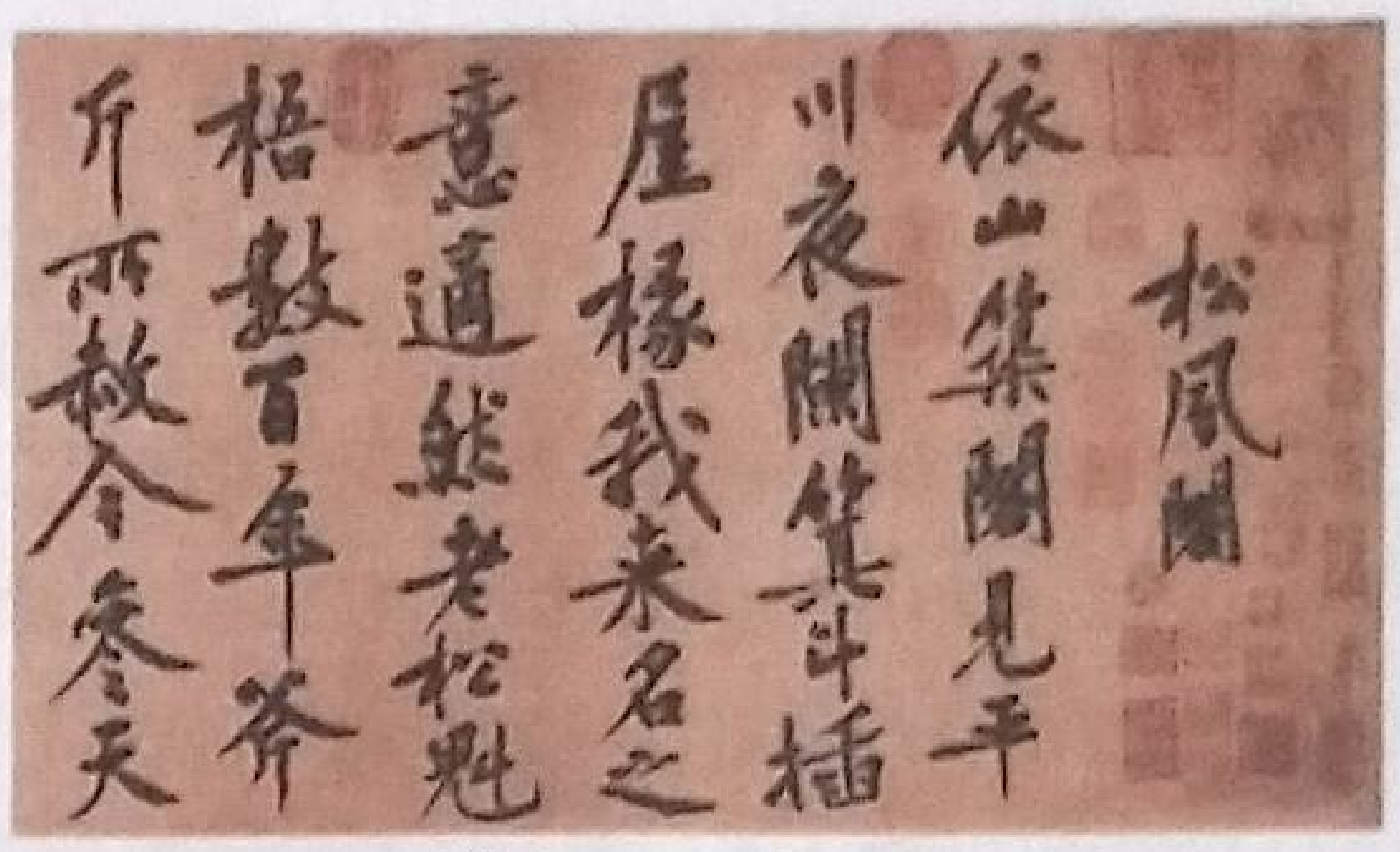
Chinese were the first to produce silk from silkworms. This process is called Sericulture. It forms an important part of the Chinese tradition. Silkworms were specially reared for this process. Silk was their chief item of export.



A picture of Sericulture

Script

It was pictographic or ideographic like the script of other civilisations. They wrote on a silk cloth with a fine brush. The earliest Chinese writings were found on animal bones. It is remarkable that the Chinese script has changed very little since the earliest times.

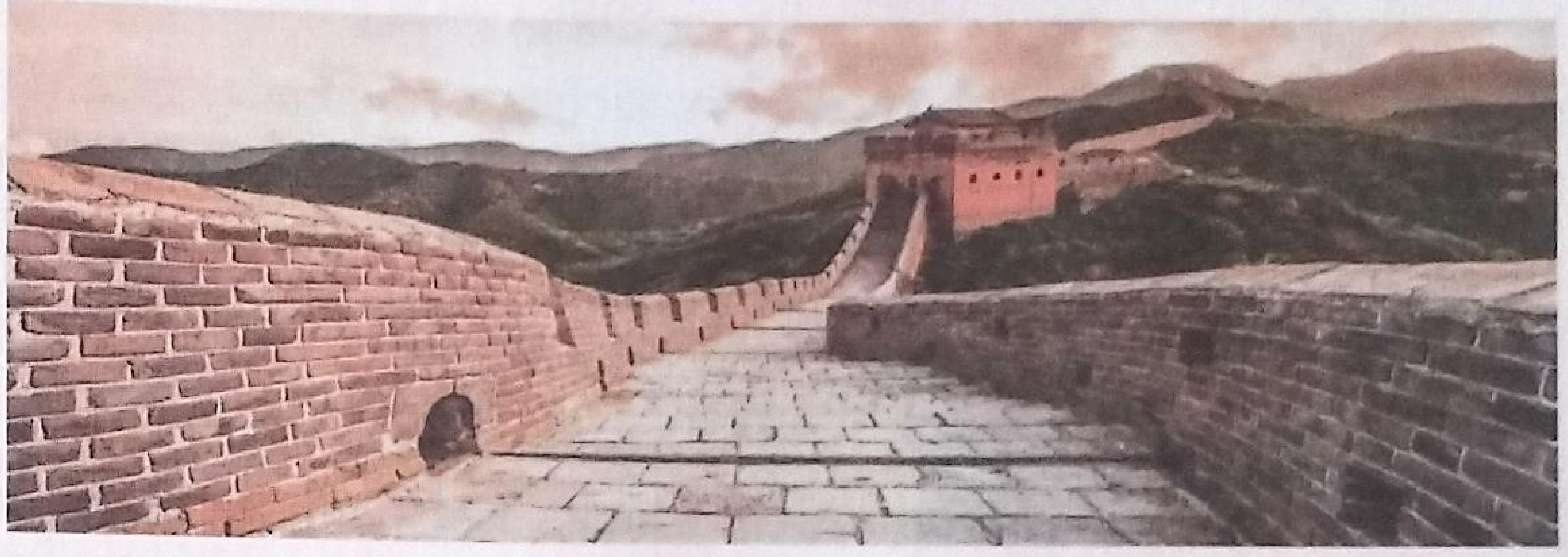


松風閣

依山築閣見平川夜闌箕斗插屋椽我來名之意適然老松魁梧數百年斧斤所赦今參天

Chinese Script

Trade



The Great Wall of China

The Chinese had trade relations with countries like Egypt, Mesopotamia, Iran and India. Their chief exports were silk, chinaware, tea and paper. The Chinese were the first to grow tea for medicinal purposes, which later became a very popular beverage all over the world. They were the first to produce silk from silkworms. They were also the first to make porcelain or chinaware which was a kind of glazed pottery decorated with beautiful designs. **They were also the first to produce paper.**

Contributions of the Chinese

The Great Wall of China

The Chinese displayed their great engineering skills. The Great Wall of China is the highest and longest wall in the world. Each tower had soldiers who would keep watch over the enemy and ward off attacks by them. It is recognised as **one of the seven wonders of the world.**

Engage and Reflect

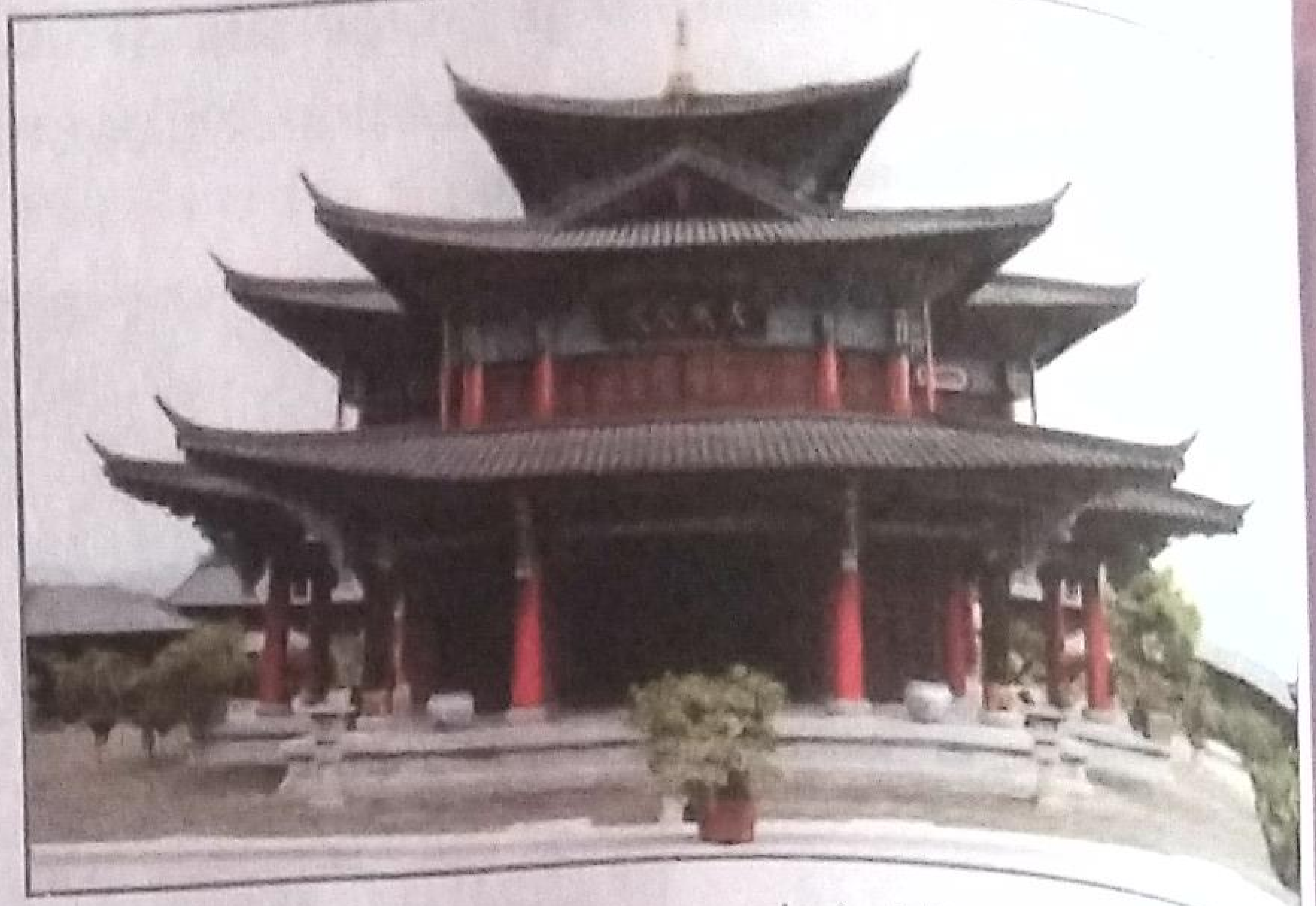
Buddhism spread to China because of the Silk Route. How did Silk Route play an important role in shaping the Chinese Civilisation? Discuss.

DID YOU KNOW? It is said that the Great Wall of China is the only man-made structure which can be seen even from the moon. It is one of the seven wonders of the world.

The Pagodas

The Pagodas made of wood are another example of fine Chinese architecture. These are stupa style temples with beautiful decorated walls. Pagodas are traditional part of Chinese architecture.

One of the most spectacular archaeological discoveries is the **tomb of an emperor**. In size the tomb or mausoleum of Emperor Qin Shi Huang is larger than the Great Pyramid in Egypt. It contains an army of 8000 soldiers standing in full military dress and according to divisions and ranks. All these soldiers are made of terracotta.


The Chinese pagoda in Lijiang, China

Calendar

It had 12 months of 30 days and a year of 12 months, i.e. 360 days. Five days were adjusted periodically like the Indian calendar, by adding a month. It was a combination of solar and lunar calculations.

Progress in Science and Technology

Silk was first produced in China. Their weavers wove very high quality silk from silk threads.

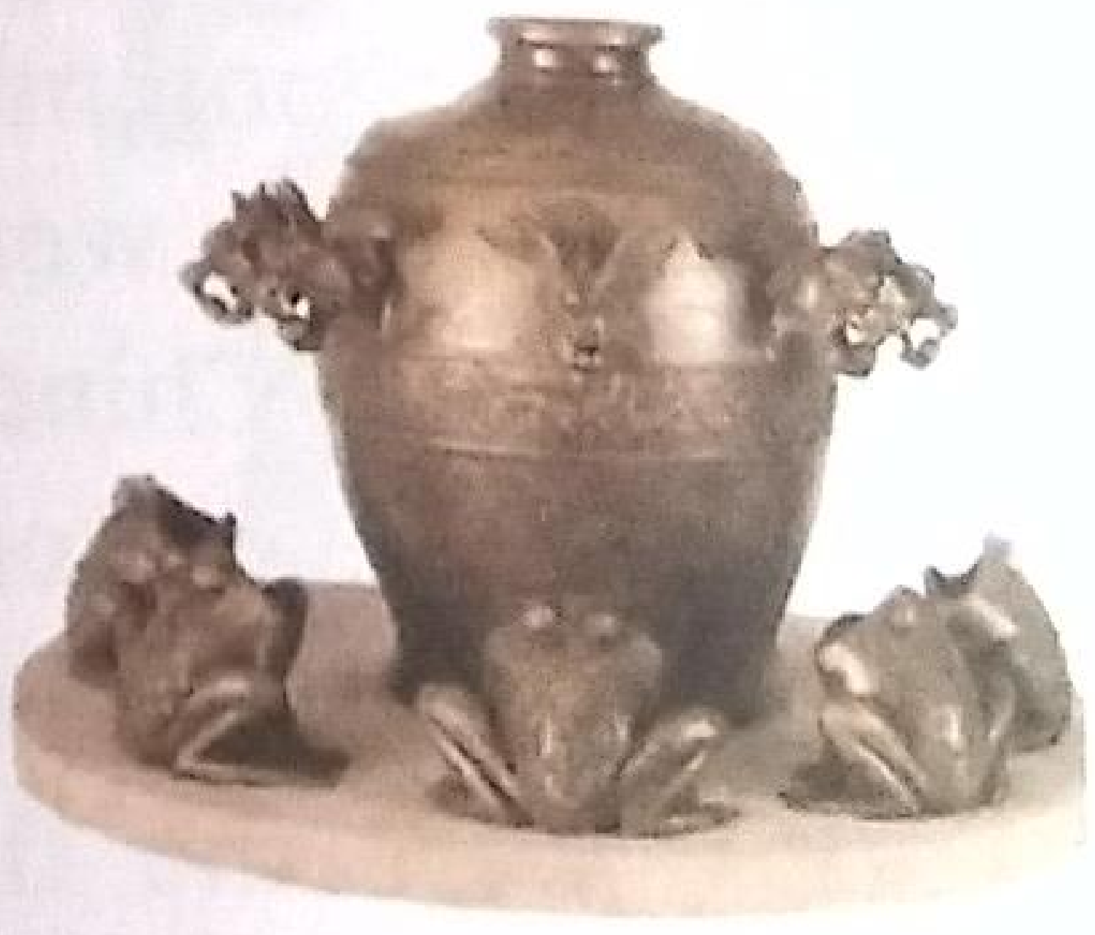
They also invented paper. Silk and paper are their greatest contributions to the world. Beautiful bronze vessels decorated with figures of animals and dragons, statues of dancing girls and weapons were made by them. They were the first to make glazed pottery made of clay called porcelain. This was 'Chinaware'. They also created beautiful woodwork inlaid with ivory.

Chinaware, porcelain stove

The Chinese developed various branches of science, like physics, astronomy, mechanics, medicine and mathematics. **They made the seismograph and recorded earthquakes**. They used both solar and lunar calendars.

They also invented the mariner's compass, paper, gun powder, the umbrella and kites. They made rapid advance in the use of metals.

They invented an astronomical clock. The Chinese civilisation was a highly advanced civilisation and it made tremendous progress in all the fields.


Chinese instrument for recording earthquakes — seismograph

Chinese Mariner's Compass

Astronomical clock

The Chinese were skilled in wood work. Their wooden products were beautifully decorated with ivory inlay work. They also used a great deal of wood to construct palaces.

The Chinese Civilisation is one of the few ancient civilisations that has relevance even in the present times. Their inventions have become a part of our daily lives.

KEY LEARNINGS

- The Chinese Civilisation flourished around 1800 BCE along the banks of River Hwang Ho.
- They were the first to produce tea and silk.
- The Chinese script was pictographic.
- The Great Wall of China is a marvel of engineering skill.
- The Chinese invented the seismograph to record earthquakes, used both lunar and solar calendars.
- They invented the mariner's compass, gunpowder, paper, umbrella and kite.

AN EXCERPT

Along the long, restless bends of the **Yellow River**, Chinese civilization learned an early and unforgiving truth: order is not gifted by nature – it must be built, repaired, and defended season after season. From ritual bronzes cast for ancestral memory to characters etched into bone and shell, early China turned time itself into a record, refusing to let meaning dissolve into dust. The state, the family, and the self were imagined as one continuous moral structure – a living architecture in which harmony was not softness, but discipline. When **Confucius** spoke of virtue, he was not chasing private salvation; he was sketching the operating system of society. Even stone followed the same logic: the vast line we now call the **Great Wall** is not merely a military scar across mountains, but a political idea made physical – a civilisation drawing its boundaries against chaos, and daring history to test them.

GLOSSARY

Pharaoh	:	Ruler of ancient Egypt
Patriarchal	:	Ruled or contolled by men
Embalmed	:	To treat a dead body with chemicals to prevent it from decaying
Pyramid	:	A massive structure in ancient Egypt with four triangular walls
Mummies	:	Preserved dead bodies of monarchs
Taoism	:	A Chinese philosophy founded by Lao-tze emphasising a natural and pure way of life
Pagodas	:	Multi-storeyed Buddhist temples with decorated roofs
Seismograph	:	Instrument for recording earthquake

Exercises

A. Multiple choice questions (MCQs)

1. Identify the facts about Egyptian Script.

   P : White paper was used for writing

   Q : Deciphered by John Marshall

   R : Picture writing known as hieroglyphic

   S : It had 500 signs

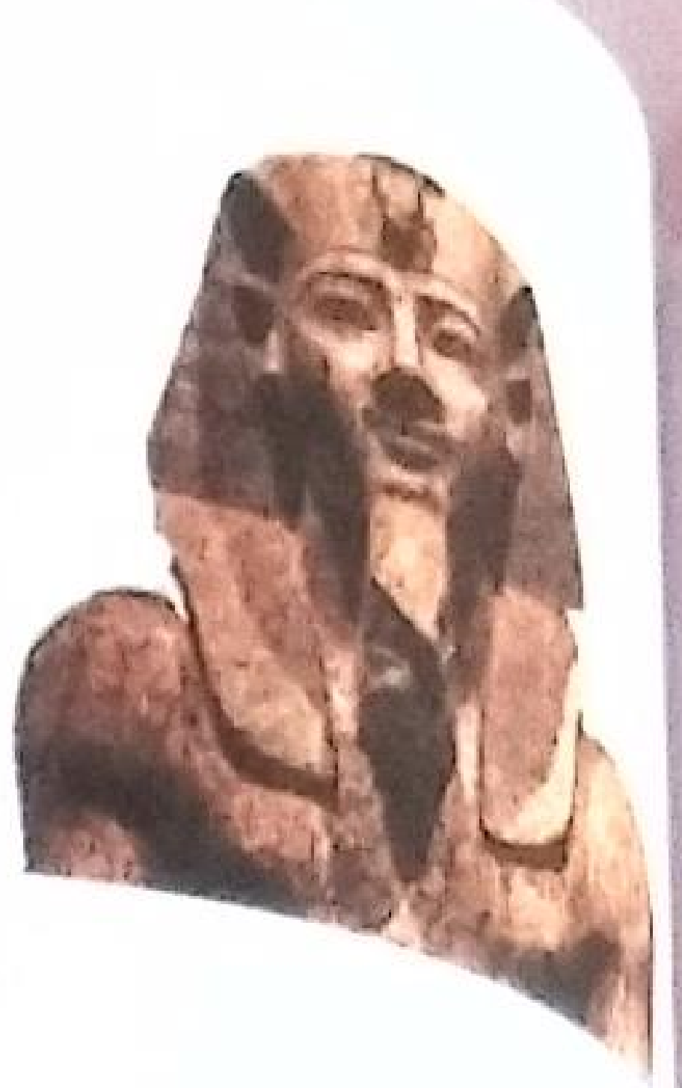
   (a) P and Q (b) R and S (c) P and S (d) Q and S

2. Meena is preparing a project on Egyptian Civilisation. Which of the following would MOST LIKELY be part of her project?

   (a) The Great Pyramid (b) The Spinx

   (c) The Hieroglyphic Script (d) All of these

3. Which of the following aspects is being depicted by the given picture?
   (a) Egyptian Priest
   (b) Egyptian King
   (c) Egyptian God
   (d) Founder of Egyptian Civilisation



4. Consider the statements given below and choose the correct answer.
   Statement I : The Egyptian society was partriarchal.
   Statement II : Women were given freedom and respect and enjoyed many rights.
   (a) Statement (I) is correct and statement (II) is incorrect
   (b) Statement (I) is incorrect and statement (II) is correct
   (c) Both statements (I) and (II) are incorrect
   (d) Both statements (I) and (II) are correct
5. Which among the following statements is incorrect?
   (a) The Spinx is a fine example of Egyptian sculpture
   (b) Pyramids were the tombs of Pharaohs
   (c) Egyptian worshipped gods and goddesses connected with nature
   (d) The staple diet of the Egyptians was rice and millet
6. Rashi is preparing speech on achievements of Egyptians. Which of the following achievements she mus mention in her speech?
   (a) They were aware about decimals and fractions
   (b) They provided detailed description of blood circulation system
   (c) The Solar calendar has been one of the greatest achievement of the Egyptians.
   (d) All the above
7. Identify the facts about Chinese script.
   P : Very popular in Harappan Civilisation
   Q : Pictographic or ideographic script
   R : Deciphered by Confucious
   S : Chinese wrote on a silk cloth with a fine brush
   (a) P and Q (b) R and S (c) P and R (d) Q and S
8. Meghna is preparing a project on the Seven Wonders of the World. Which of the following architectures would MOST LIKELY be part of her project?
   (a) Tomb of an emperor (b) Chinese Script
   (c) The Great Wall of China (d) The Chinese Pagoda in Lijiang
9. Consider the statements given below and choose the correct answer.
   Statement I : The Chinese had trade relations with countries like Egypt, Mesopotamia, Iran and India.
   Statement II : The Chinese were the first to produce silk from silkworms.
   (a) Statement (I) is correct and statement (II) is incorrect.
   (b) Statement (I) is incorrect and statement (II) is correct.
   (c) Both statements (I) and (II) are incorrect.
   (d) Both statements (I) and (II) are correct.
10. Which among the following statements is incorrect?
    (a) The greatest contributions of Chinese to the world are silk and paper.
    (b) The Pagoda made of wood is example of fine Chinese architecture.
    (c) The king was all powerful in Chinese Society.
    (d) The Chinese invented steam engine.

B. Fill in the blanks.

1. The Egyptian kings were called ________________.
2. ________________ is the process of preserving dead bodies.
3. The old kingdom is known as the period of the ________________.
4. The staple diet of the Egyptians was ________________.
5. ________________ was the chief occupation of the Egyptians.

C. Match the following items given in column A with those in column B.

	Column A	Column B
1.	Pagoda	A. Lord of Heaven
2.	Hwang-Ho	B. Glazed pottery of porcelain
3.	Seismograph	C. Stupa style temple
4.	Shang Ti	D. Sorrow of China
5.	Chinaware	E. Records earthquakes

D. Very short answer type questions.

1. Which is referred to as the gift of Nile?
2. Who was the pharaoh?
3. What was the chief occupation of Egyptians?
4. What were the musical instruments played by Egyptians?
5. Who was the most important God of Egyptians.
6. Which river is called the sorrow of China?
7. Name the two most popular religions of the Chinese.
8. Which popular beverage was first grown by the Chinese?
9. Name one of the seven wonders of the world from China.
10. Name four important inventions of ancient Chinese.

E. Short answer type questions.

1. Describe the three ancient periods of the Egyptians.
2. Describe the postion of the king in Egyptian society.
3. Describe the economy of ancient Egyptians.
4. What was the sphinx?
5. Throw light on the Egyptian script.
6. Name the ancient dynasties of the Chinese..
7. Discuss the religion of the ancient Chinese.
8. Describe the calendar of the Ancient Chinese.

F. Long answer type questions.

1. Which philosophical systems were followed by the Chinese people? By whom they were founded?
2. Mention some of the dynasties that ruled China.
3. Describe the contributions of the Chinese Civilisation in various fields.
4. What is Great Wall of China? Describe its features.

5. Describe the society of Chinese Civilisation.
6. Mention the contribution of ancient Egyptians in the field of astronomy.
7. Why is the Egypt called the Gift of the Nile?
8. Explain the important features of Egyptian art and architecture.
9. What do you mean by the term 'Hieroglyphic'? Explain its features also.

G. Assertion-Reason questions.

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(c) (A) is correct but (R) is wrong
(d) (A) is wrong but (R) is correct

1. **Assertion (A) :** The Solar Calendar was one of the greatest achievement of Egyptian Civilization.
   Reason (R) : It told about accurate knowledge of seasons, rains and floods for their farming.
2. **Assertion (A) :** The Egyptians developed a kind of picture writing known as hieroglyphic.
   Reason (R) : They wrote on the bark strips of a plant called papyrus.
3. **Assertion (A) :** The Chinese were skilled in wood work.
   Reason (R) : They built excellent pagodas.

H. Case-based questions.

The Solar Calendar has been one of the greatest achievements of the Egyptians. They needed an accurate knowledge of seasons, rains and floods for their farming. They observed that the star Sirius appeared on the horizon when the floods reached Cairo and this happened after every 365 days. It inspired them to make the first known calendar of 365 days in a year of 12 months, each of 30 days, five more days were added to the calendar for celebration of religious festivals.

1. What is a solar calendar?
2. Describe the Egyptian calendar
3. Why were five more days added to the calendar?

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Theme V : State and Society (upto 1000 CE)

7

The Vedic Age

KEY CONCEPTS

- **Early Vedic Period :** Sources, political organisation, social life, four varnas, religion, economic life.
- **Later Vedic Period :** Political organisation, social life, four varnas, religion economy, literature, stages of life, education.

The Vedic Period or the Vedic Age refers to the time period when the Aryans arrived in India. The Vedic Civilisation flourished from 1500 BCE – 600 BCE. The history of the Vedic period is based mainly on the Vedic texts such as the Vedas, Upanishads, Epics etc. It is the earliest Civilisation in Indian history of which we have written records.

Many great changes took place in India during the period of Vedic civilisation (1500 BCE – 600 BCE). The Aryans developed this civilisation. During this period agriculture was well developed and significant progress was made in social and cultural fields.

There is uncertainty about the origin of the Aryans.

There are different theories about it :

- They were original inhabitants of India.
- They migrated from the Arctic regions.
- They spread out from Central Europe.

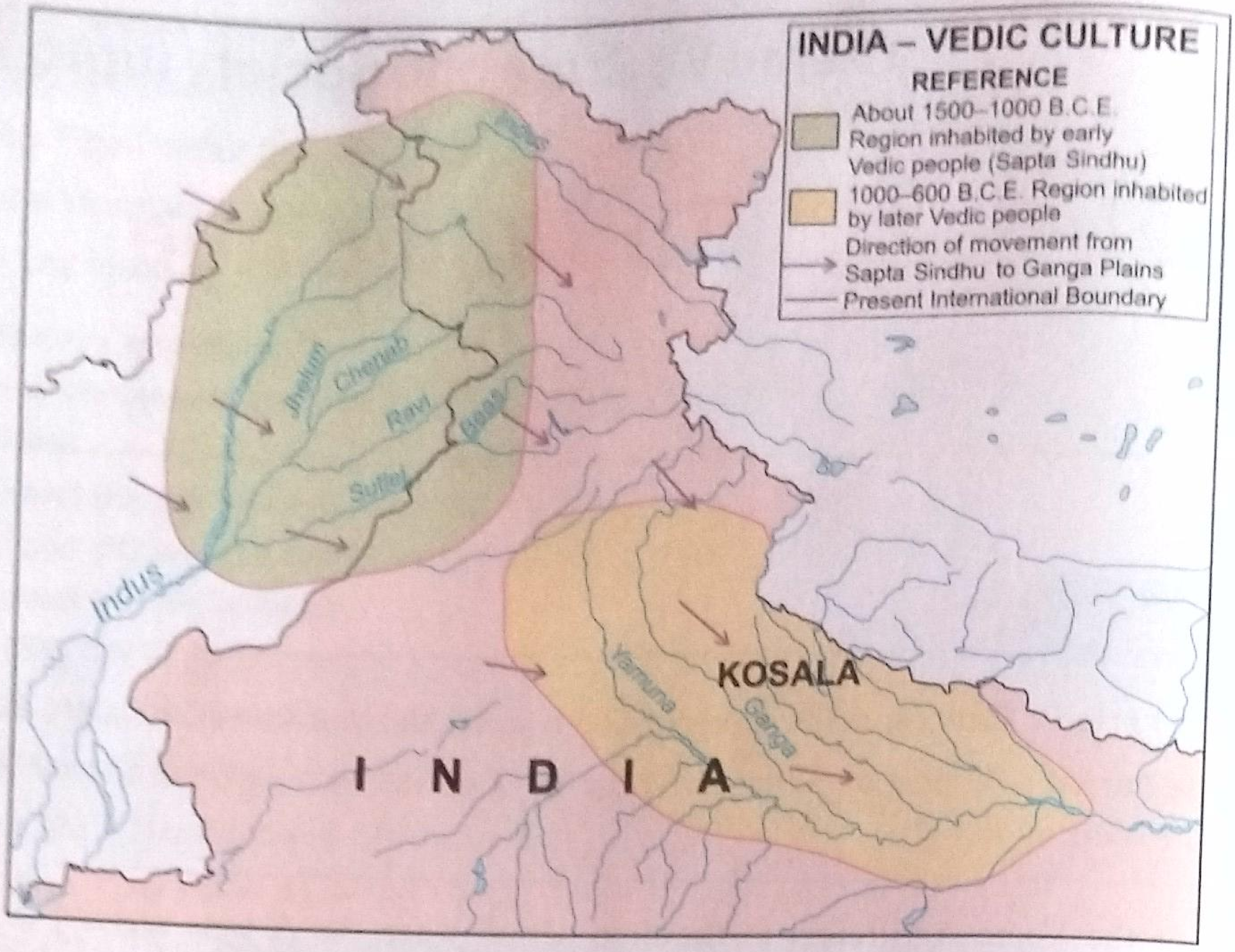
But historians agree that they came from Central Asia in 1500 BCE.

The Aryans who arrived in India in about 1500 BCE are called 'Indo-Aryans'. They first settled in the area known as 'Sapta Sindhu.'

'Sapta Sindhu' referred to the region around the seven rivers – Indus and her tributaries — Jhelum, Chenab, Ravi, Beas, Satluj and Saraswati. This area was named '*Brahmavarta*' by them, meaning the land of gods.

Vedic Literature

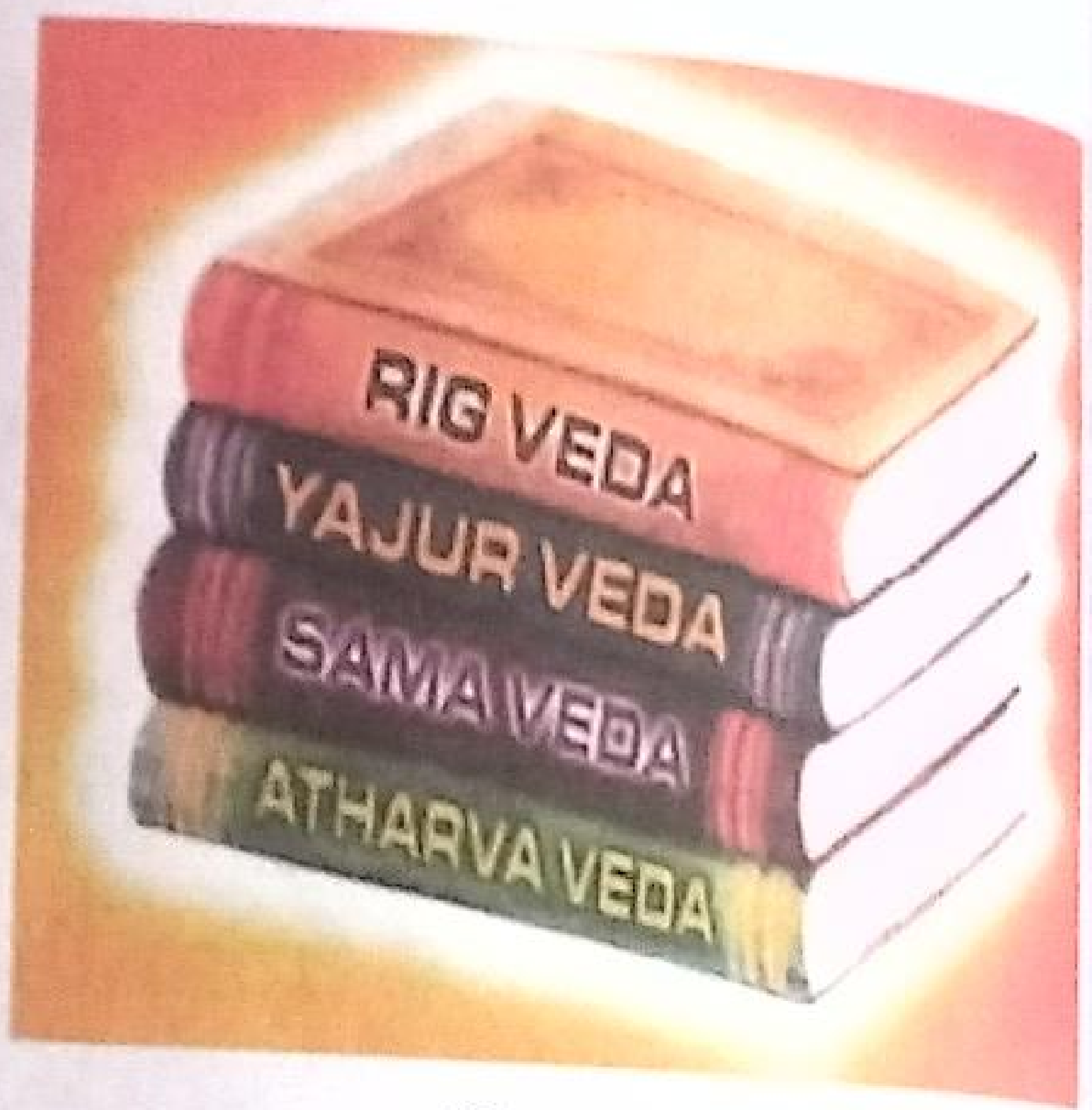
The Aryans came to India in groups. From Punjab they moved and spread over the Gangetic Valley and then southwards as far as the Vindhya Mountains. The land they settled in was called '*Aryavarta*' by them. The original inhabitants of the region were called *Dasyus* by the Aryans. The Dasyus were subjugated by the Aryans.


INDIA – VEDIC CULTURE
REFERENCE
🟩 About 1500–1000 B.C.E. Region inhabited by early Vedic people (Sapta Sindhu)
🟨 1000–600 B.C.E. Region inhabited by later Vedic people
→ Direction of movement from Sapta Sindhu to Ganga Plains
— Present International Boundary
Jhelum
Chenab
Ravi
Beas
Sutlej
Indus
Yamuna
Ganga
KOSALA
INDIA

Extent of the Aryan Civilisation

BRAHMAVARTA : EARLY VEDIC PERIOD (1500 BCE – 1000 BCE)

The Literary Sources

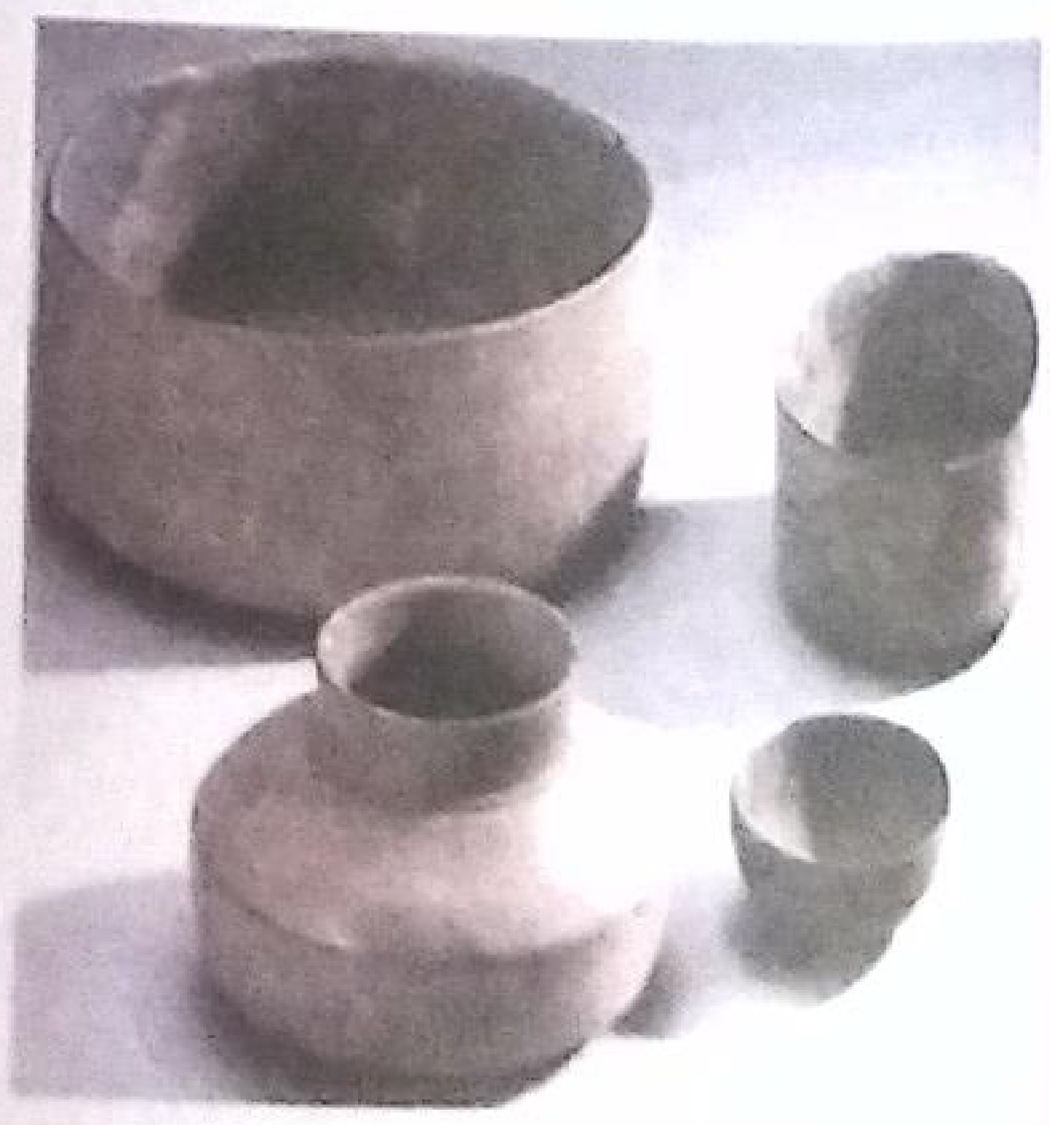

RIG VEDA
YAJUR VEDA
SAMA VEDA
ATHARVA VEDA

The Vedas

The Vedic literature, i.e. the Vedas, are the most important. The word 'Veda' means knowledge. The Vedas — *Rig Veda, Sama Veda, Yajur Veda* and *Atharva Veda* — contain hymns composed in praise of gods. Before they were finally written down, these hymns were passed on orally from generation to generation. The Rig Veda which was composed in 1500 BCE is the chief source of information. The Vedas give us a lot of information about the religious beliefs and practices of the Aryans. Other literary sources are the Upanishads, *Brahmanas*, Puranas, Aranyakas and the Epics – the *Ramayana* and the *Mahabharata*. The author of the *Ramayana* was Valmiki and the *Mahabarata* was written by Ved Vyas. The two epics provide information about the social, economic, political and cultural life of the people. This is the reason why the whole period from 1500 BCE to 600 BCE is known as the Vedic Age. The Vedic Age is further divided into the Early Vedic Age (1500 BCE – 1000 BCE) and Later Vedic Age (1000 BCE – 600 BCE).

Archaeological Sources

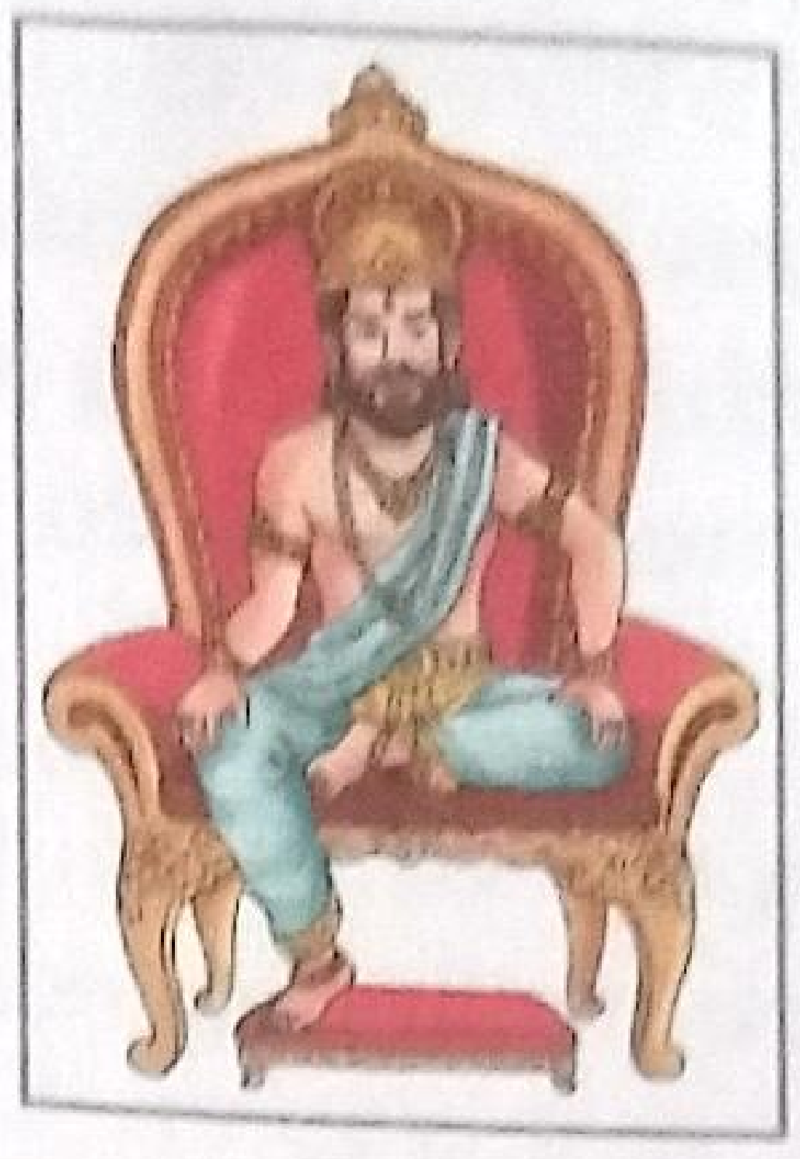
Archaeological evidence about the Vedic Age includes some distinctive pottery which is called Painted Grey Ware (PGW). This Painted Grey Ware was found in the excavations made at Hastinapura and at Atranjikhera. PGW is very fine, smooth pottery comprising open-mouthed bowls and dishes. It was made from high quality clay with various geometric patterns painted on it in black or brown. PGW was used in the Later Vedic Age.

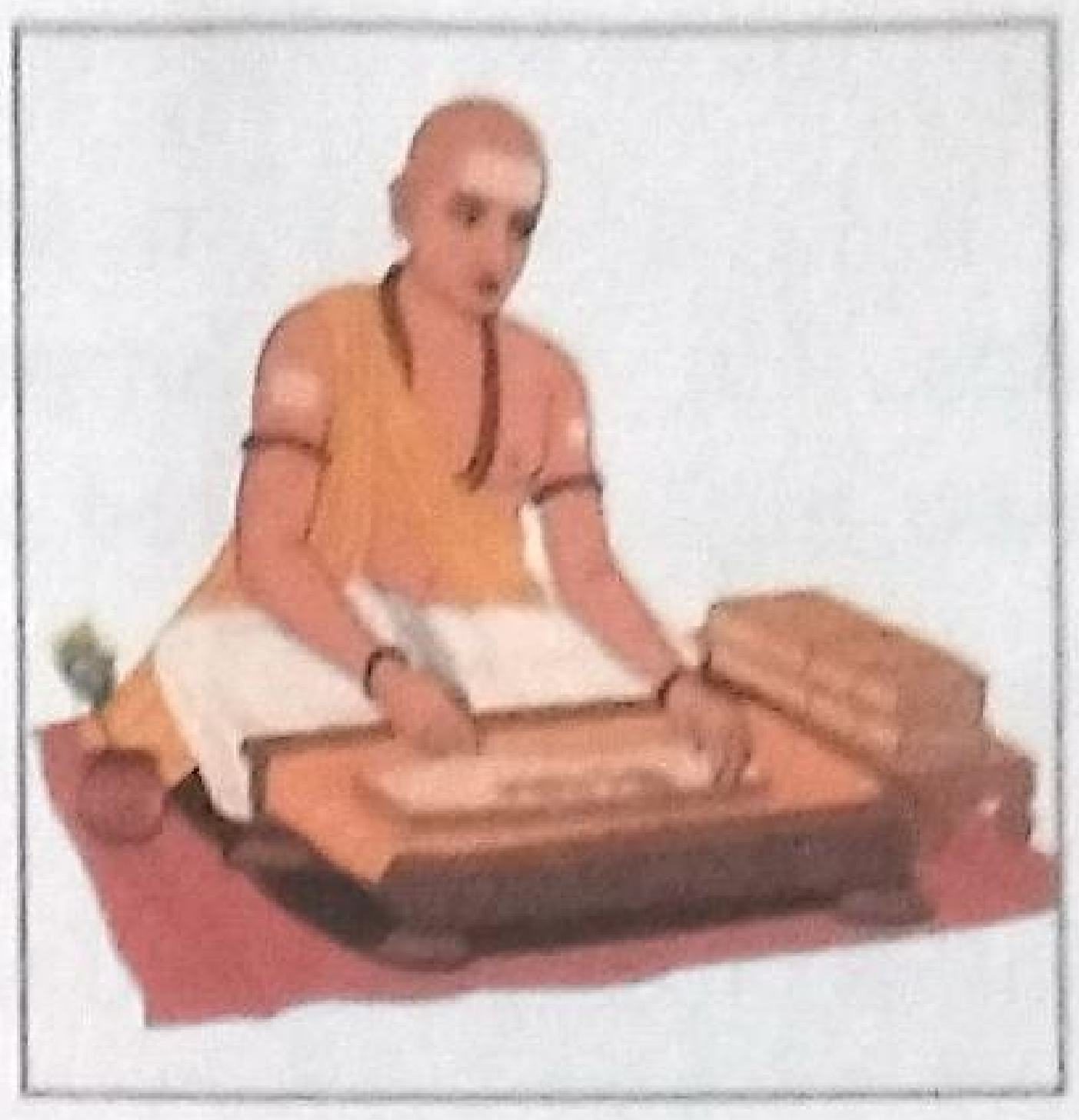


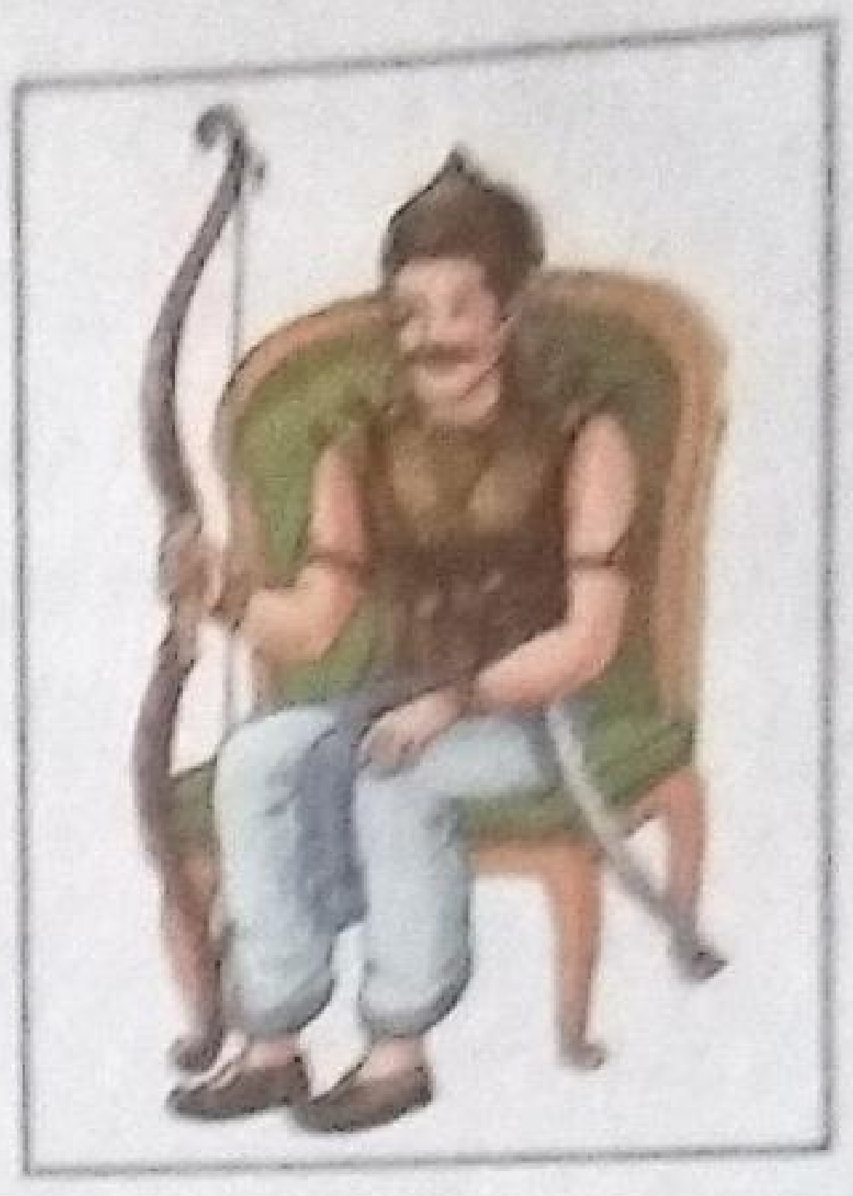
Painted Grey Ware

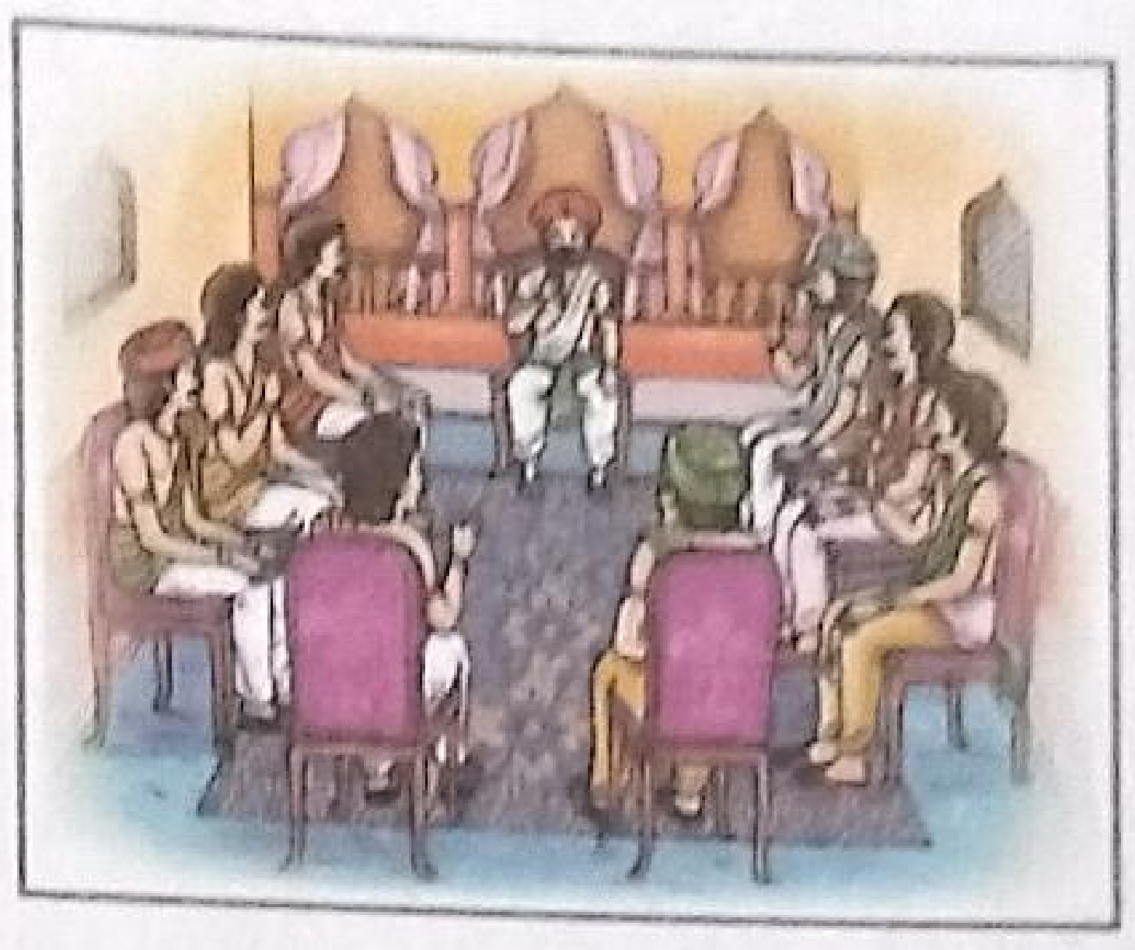
Political organisation

The Aryans were divided into many tribes. Each tribe settled in a particular area and a number of villages sprang up. Each tribe had a king or ruler, selected for his bravery and wisdom. The king had to perform both military and religious duties. His chief duty was to protect the tribe and its territory. He was called 'Rajan'. The king was assisted in his work by a *Senani* (commander of the army) and a *Purohit* (chief priest). The village head *(Gramini)* also helped the king. The *Gramini* looked after the village administration and kept a fighting force ready to help the king in times of war.


Rajan


Purohit


Senani


Purohit

Purohit

The Aryans had two important assemblies—the *Sabha* and the *Samiti*. The Samiti was an assembly of all the people of the village. The Sabha was a smaller body consisting of senior citizens and important members. These assemblies checked the power of the king. The king treated them with great respect. The Sabha gave its advice to the king on important matters. The 'Samiti' was a body that represented the whole tribe while the 'Sabha' was composed of only the distinguished members.

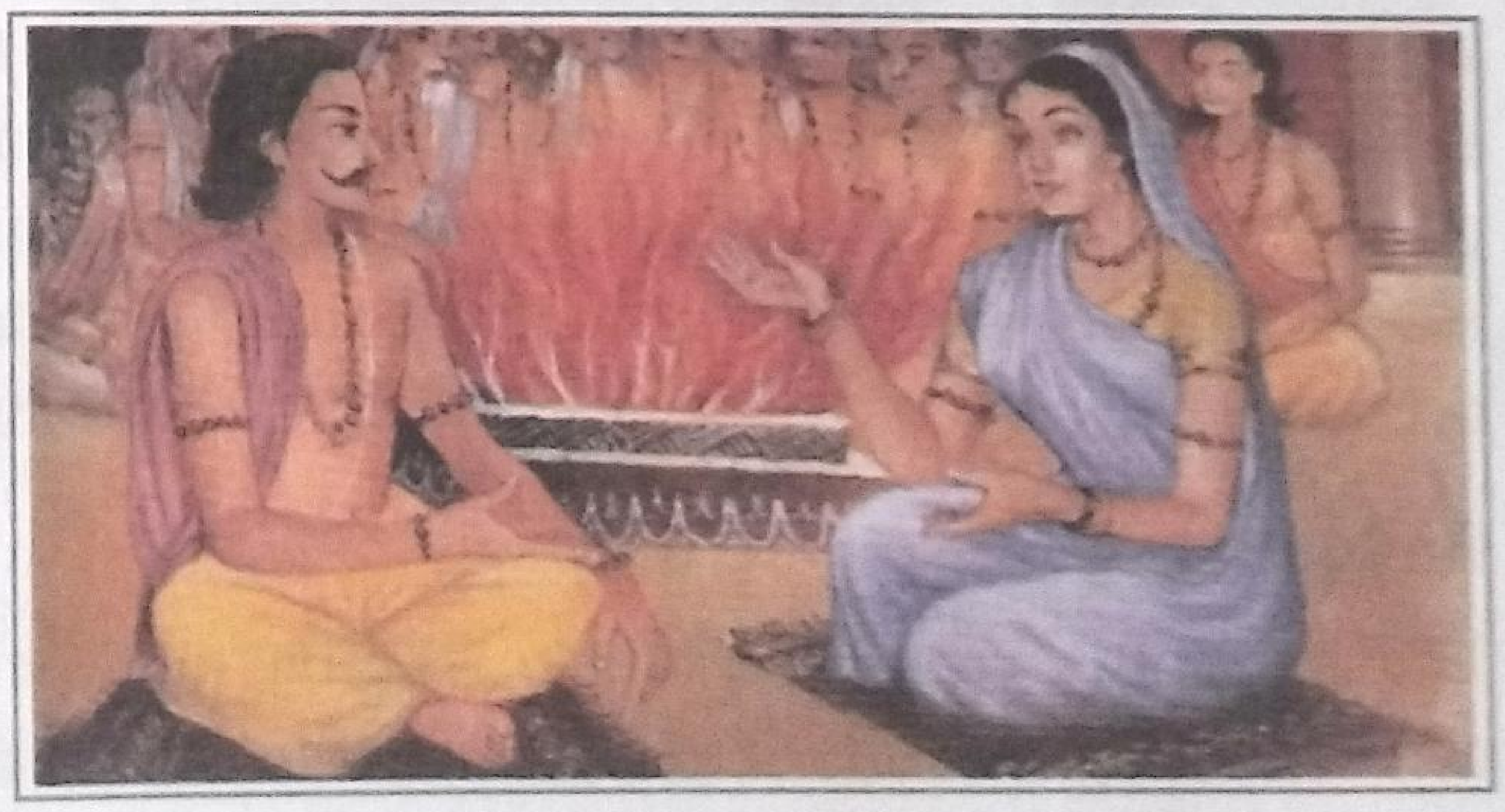
The members of the Sabha were called the 'Sabhasads' and its President was called the 'Sabhapati'. Free discussions were held in the Sabha and the resolutions were passed by the majority vote. Its decisions were applicable to all and everybody had to abide by these decisions. The Samiti was the council for the whole tribe. There was freedom of expression for every member and the resolutions were carried by a majority vote. Even the king had to seek the cooperation of the Samiti which helped him in strengthening his position. At the time of his accession, the king had to take many vows in the presence of the Samiti. The Samiti could pass a resolution to remove an incompetent and cruel king.

In this way, we can say that both these institutions (the Sabha and the Samiti) had great importance and they exercised control over the king so that he did not turn into an autocrat. Thus we can say that despite their monarchical system, there were glimpses of democracy in the administrative system of the Aryans.

Vidatha was an important Vedic institution as it has been mentioned the most number of times.

Social Life

The Aryans lived in villages and each village was called *'grama'*. The village consisted of a number of families. The society was patriarchal. Each family was known as a *'Kul'*. The eldest male member of the family was considered the head and he made all the decisions which others had to accept. The head of the family was called **Grihapati/Gahapati.**


Gargi debating with Yajnavalkya

Women were respected and treated on par with men and given education. The wife was the husband's partner in all religious and social ceremonies. A father's property was inherited by all his children. The Sati and purdah system did not exist. Girls had the freedom to c their husbands through the system of *'Swayamvara'*.

Women were given a high status in society. They were educated and actively attended assembli participated in debates. They also composed hymns. The system of widow remarriage was accepted. and Maitreyi were two highly educated women who lived during this time.

DID YOU KNOW? Some renowned women scholars of Vedic period were Vishwara, Ghosha, Lopamudra and Mudgalini who composed some of the Rigvedic hymns. Gargi, philosopher, debated with most renowned sage Yajnavalkya.

The Four Varnas

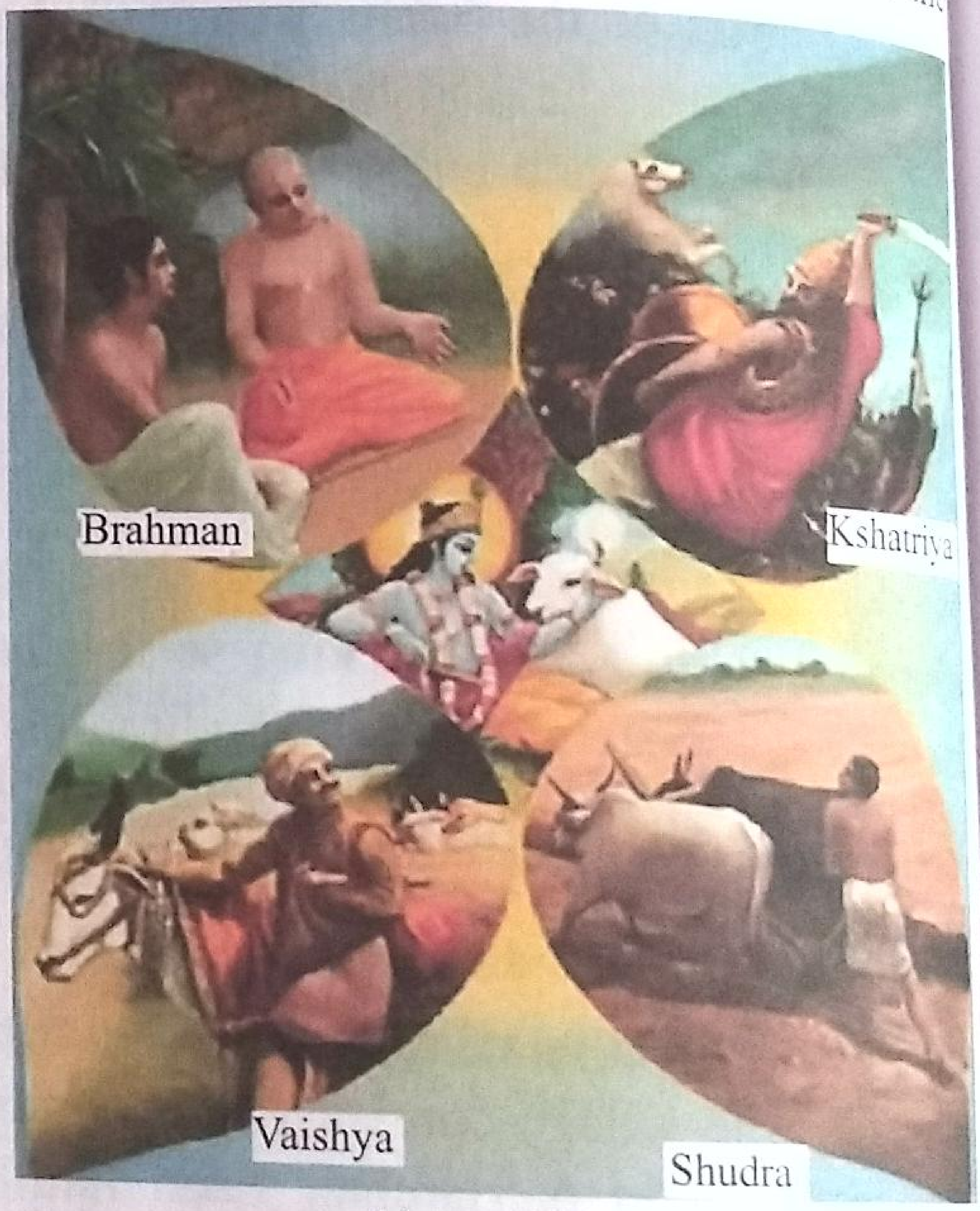
The *'Varna'* system was an important feature of the Vedic Society. There were four *Varnas* — *Brahmin, Kshatriya, Vaishya* and *Shudra.*

- The teachers were called *Brahmins,* who also conducted religious ceremonies.
- *Kshatriyas were* rulers, administrators and warriors,
- Farmers and merchants were called *Vaishyas* and
- The group that served all the three classes was called *Shudra* which also comprised artisans and labourers

During the Early Vedic period the *Varna* system was flexible and no restrictions were placed on occupations But towards the end of the Later Vedic Period, the occupations became hereditary and the people from the same occupation formed a particular varna. Slowly the varna system became very rigid and discriminatory.

The Rig Veda does not explicitly mention the varna system, but society had class divisions. The early Aryans referred to the local inhabitants as Dasyus and did not mix with them. During this period, tribal chiefs and priests accumulated wealth and power, leading to social inequalities. As a result, society was divided into warriors, priests, and common people. The Shudras appeared later, as first mentioned in the Tenth Mandala of the Rig Veda, which is considered a later addition.

The Early Vedic Period was primarily pastoral, with no system for collecting regular taxes or tributes. Society was divided based on occupation, and individuals were free to choose their profession. A Rig Vedic hymn illustrates this flexibility: "I am a poet, my father is a physician, and my mother grinds corn on stone. Being of the same family, we are engaged in different professions." However, over time, occupations became hereditary, leading to occupational divisions, which gradually became more structured.



Varna System

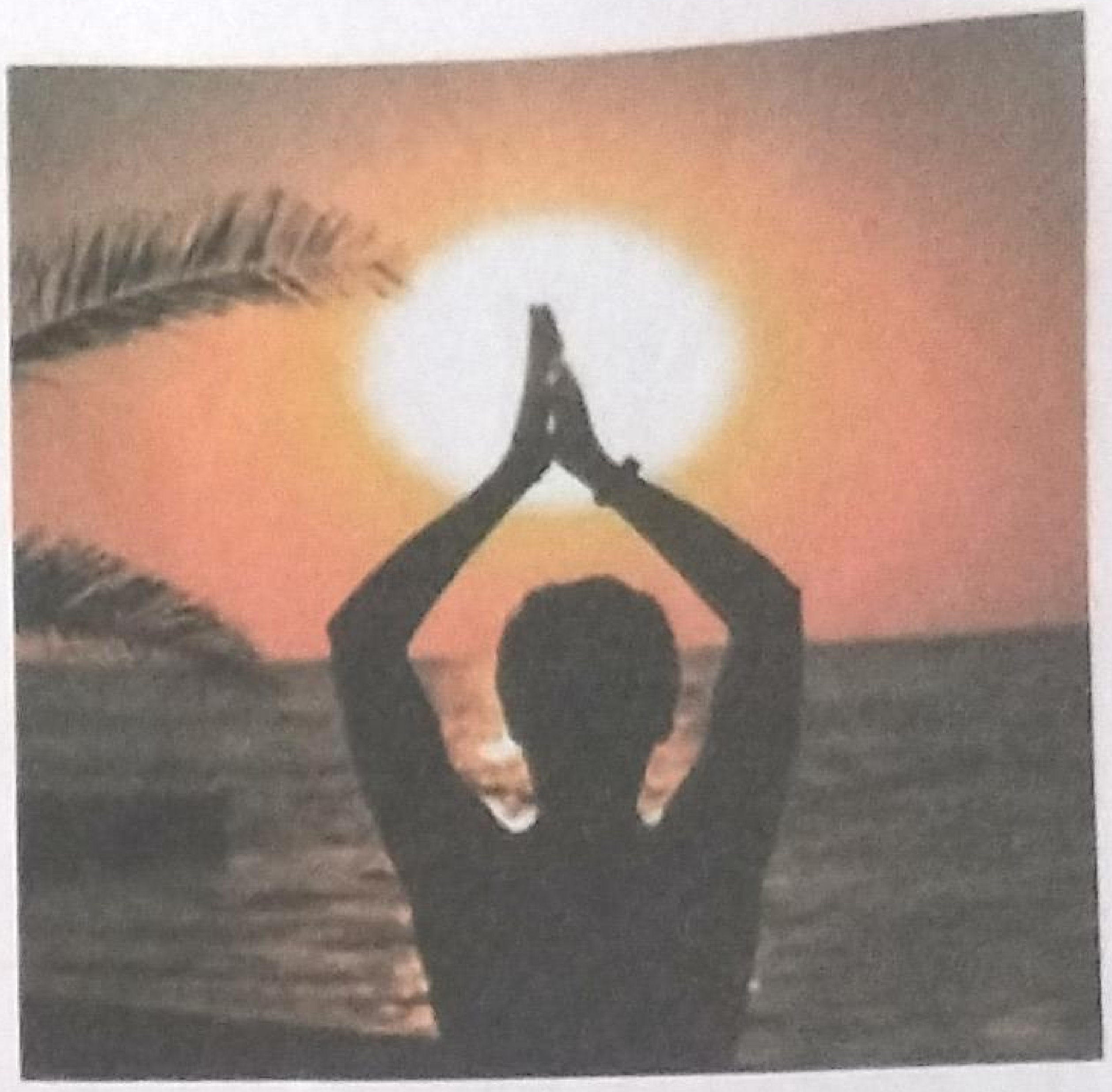
Religion

The Ancient Aryans were highly religious but their religion was simple. They were impressed by the forces of nature such as the Sun, the Fire, the Wind, the Dawn, the Water, the Rain and the Earth whom they worshipped as gods. Every natural phenomenon was regarded as a separate god, whom they worshipped for prosperity. Indra, Varuna and Agni were the chief gods. Indra was the war-god, and the god of rain. Varuna was the god of water, of seas and upholder of the natural order. In the Rig Veda there are several hymns seeking Varuna's forgiveness for one's sins as is evident from the following hymn :

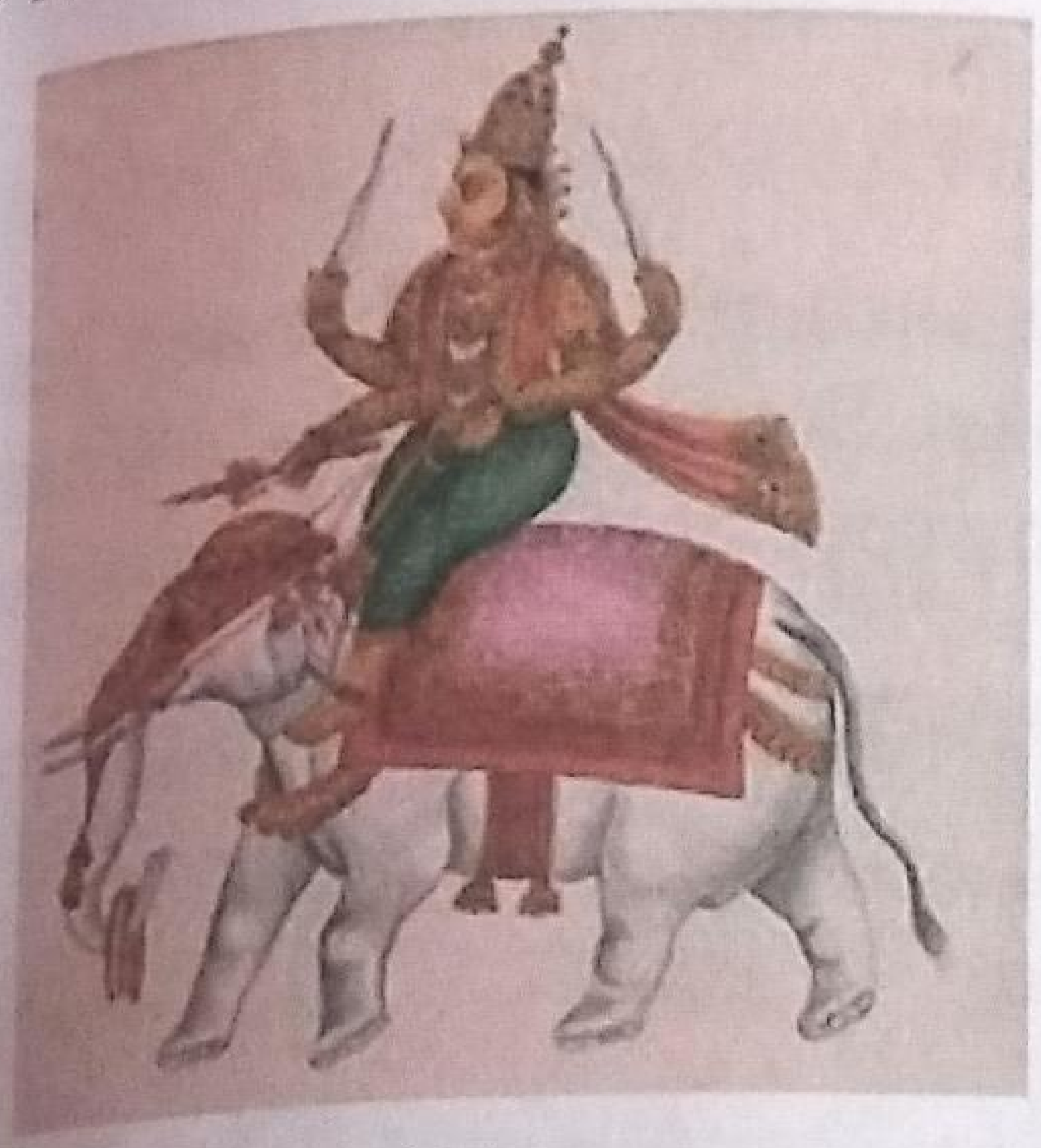
'O Varuna ! deliver us from the sin of our forefathers. Deliver us from our own sins'.

God Indra was worshipped so that he may protect his devotees from the holocaust of wars and fill their granaries by sending timely rains. Most of the hymns in the Rig Veda praise this god. One of the hymns says :

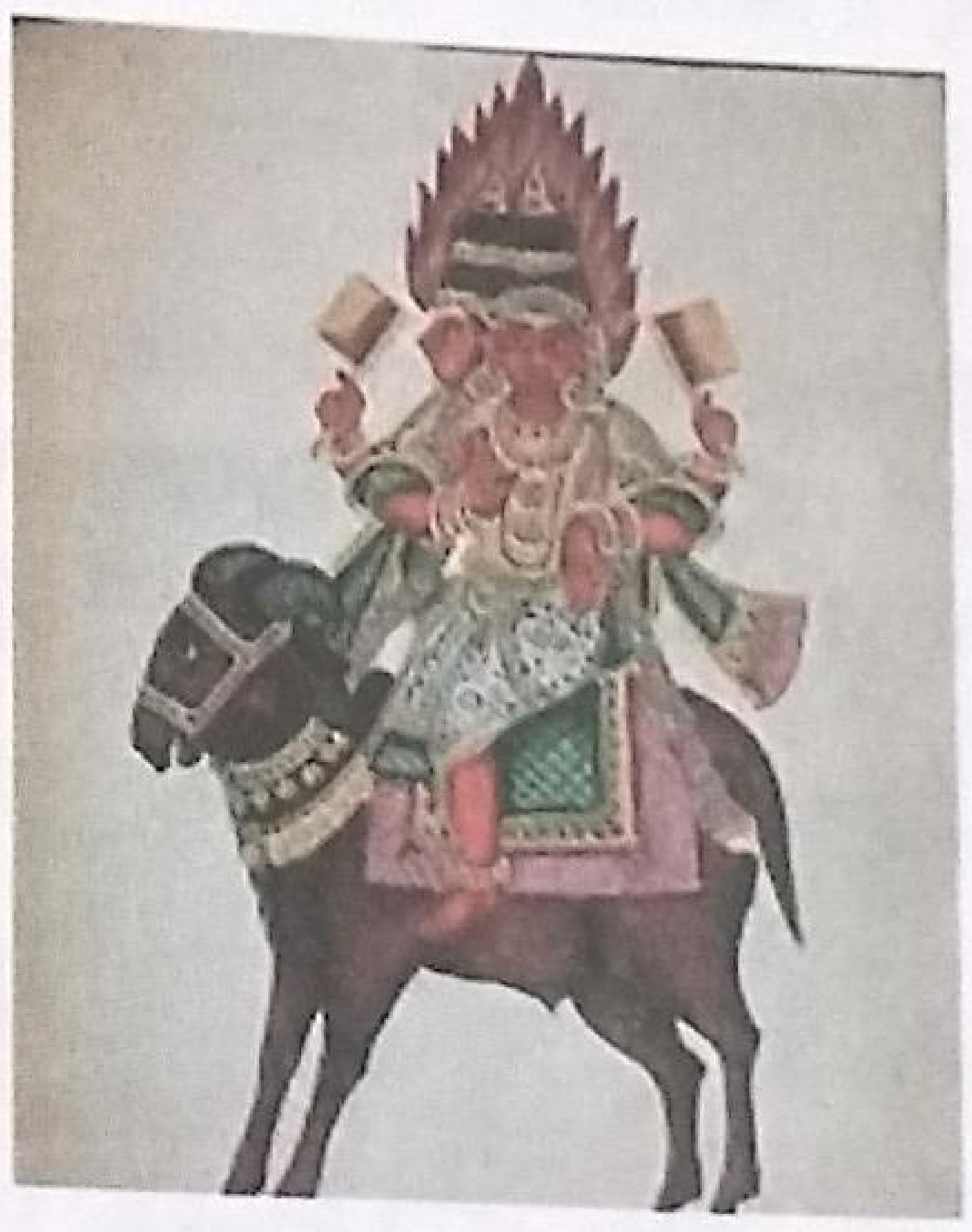
'O Indra! with your help, we will slay our foes'.



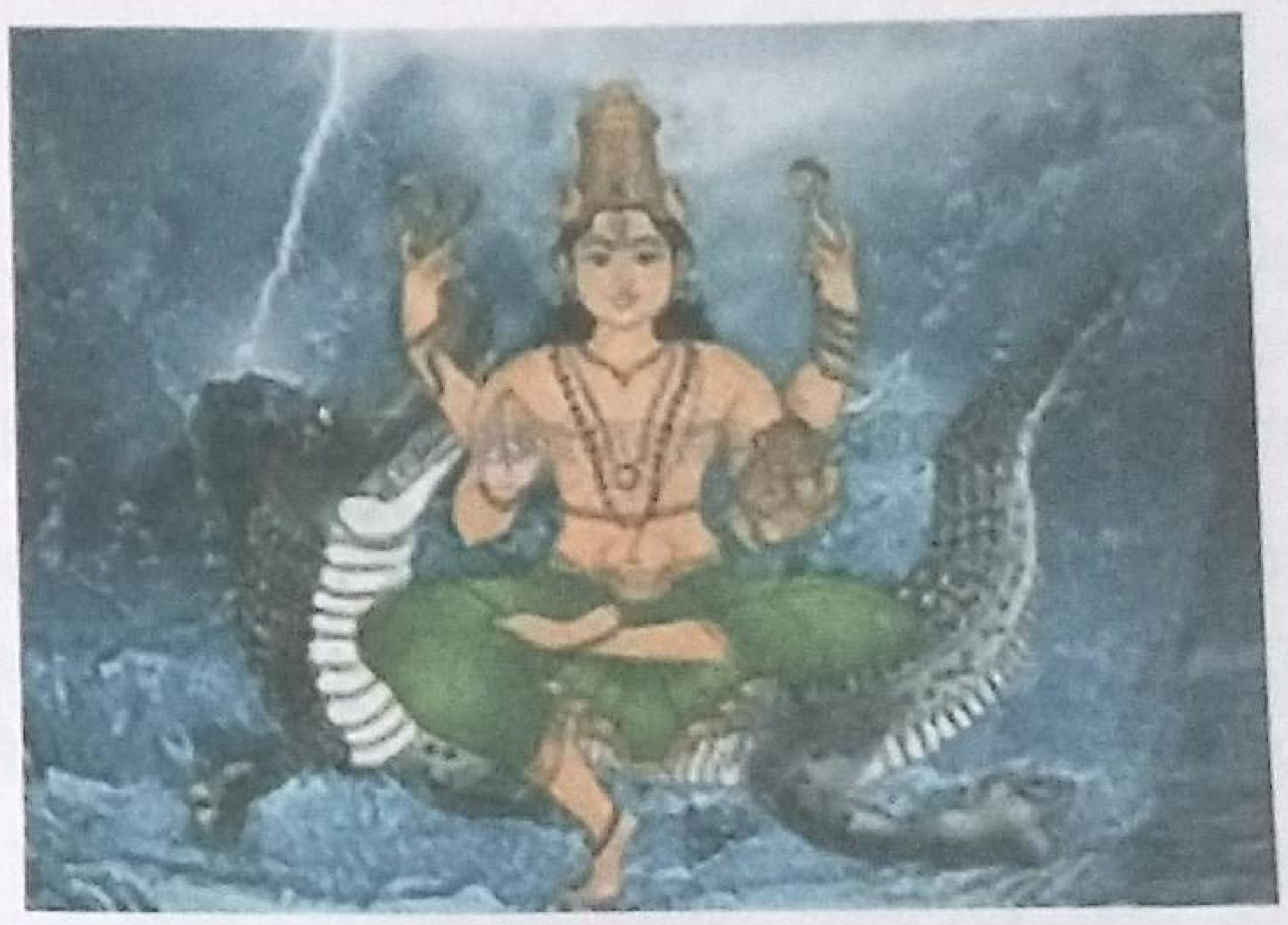
Nature Worship



Indra

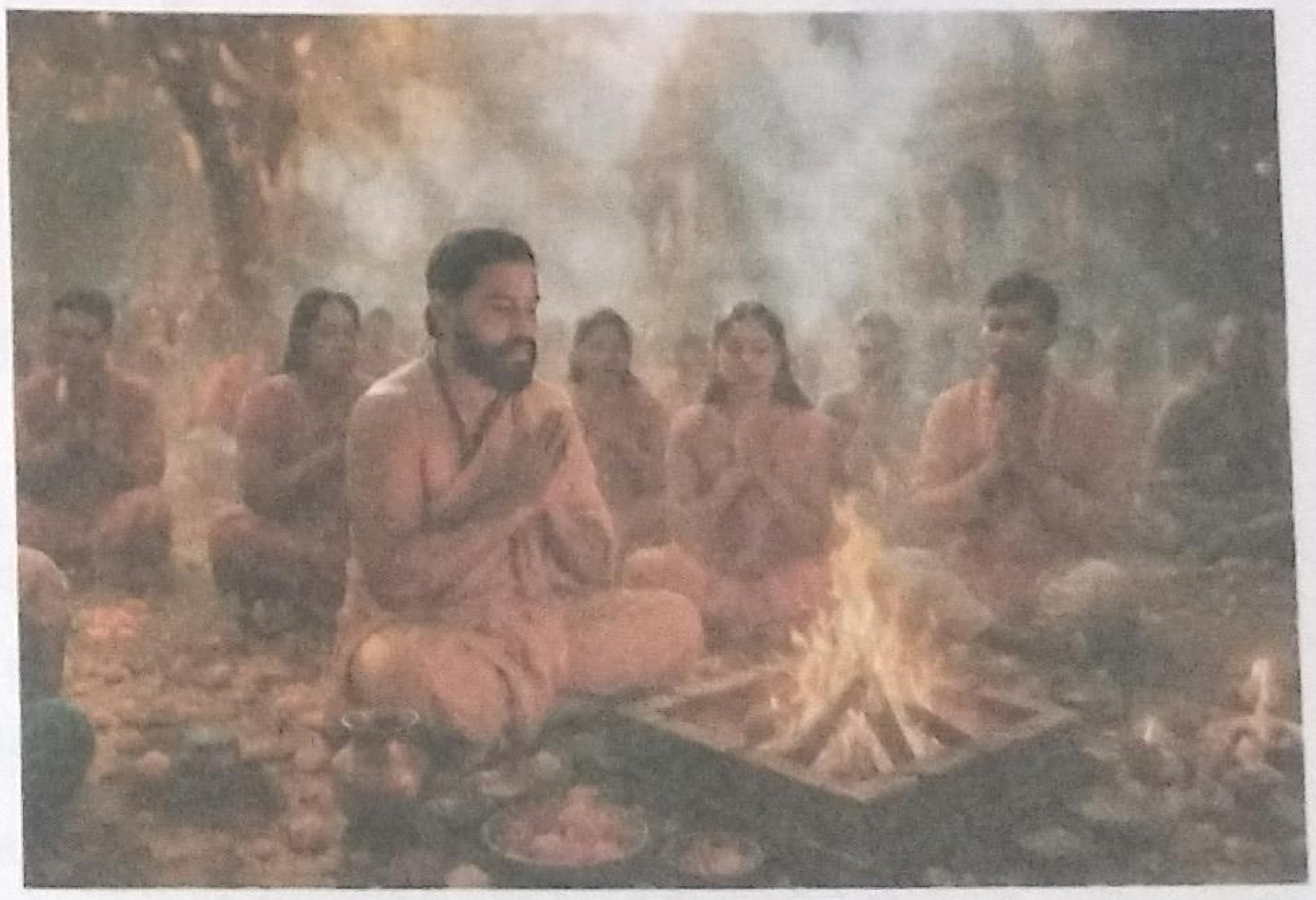


Agni



Varun

Singing of Hymns : The ancient Aryan way of worship was very simple. They had not built any temples as is done these days nor did they worship idols. They recited mantras or hymns in the open air. All the members of their families took part in the chanting of the hymns.

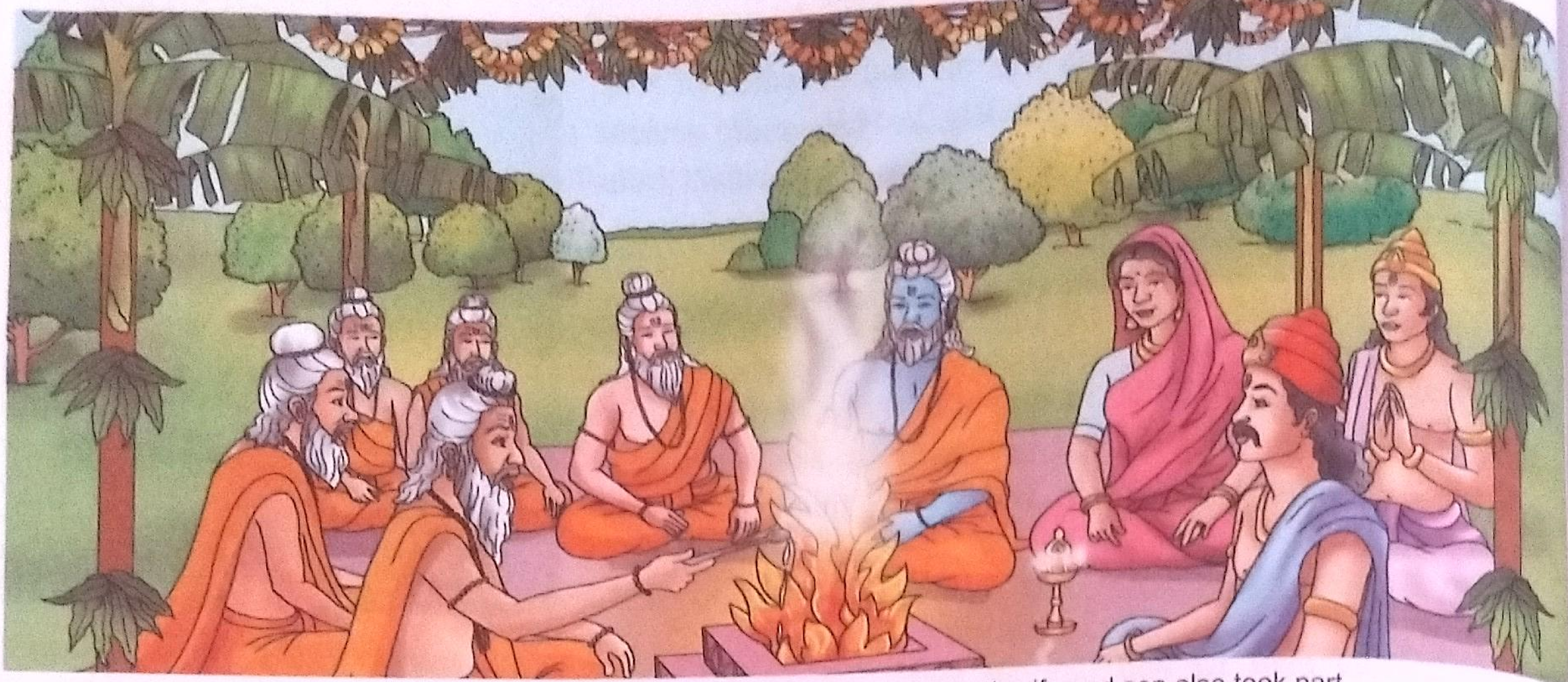


Performing of Yajnas

God	Worshipped as
• Varun	Water-God, God of seas
• Indra	God of Rain, Storm and War
• Surya	Sun-God
• Agni	God of Fire
• Vayu	God of Wind
• Usha	Goddess of Dawn
• Prithivi	Mother Goddess

Engage and Reflect

The Aryans worshipped nature and its various manifestations. Have you ever thought why was it so? Who were the female goddesses worshipped during the Vedic Age?



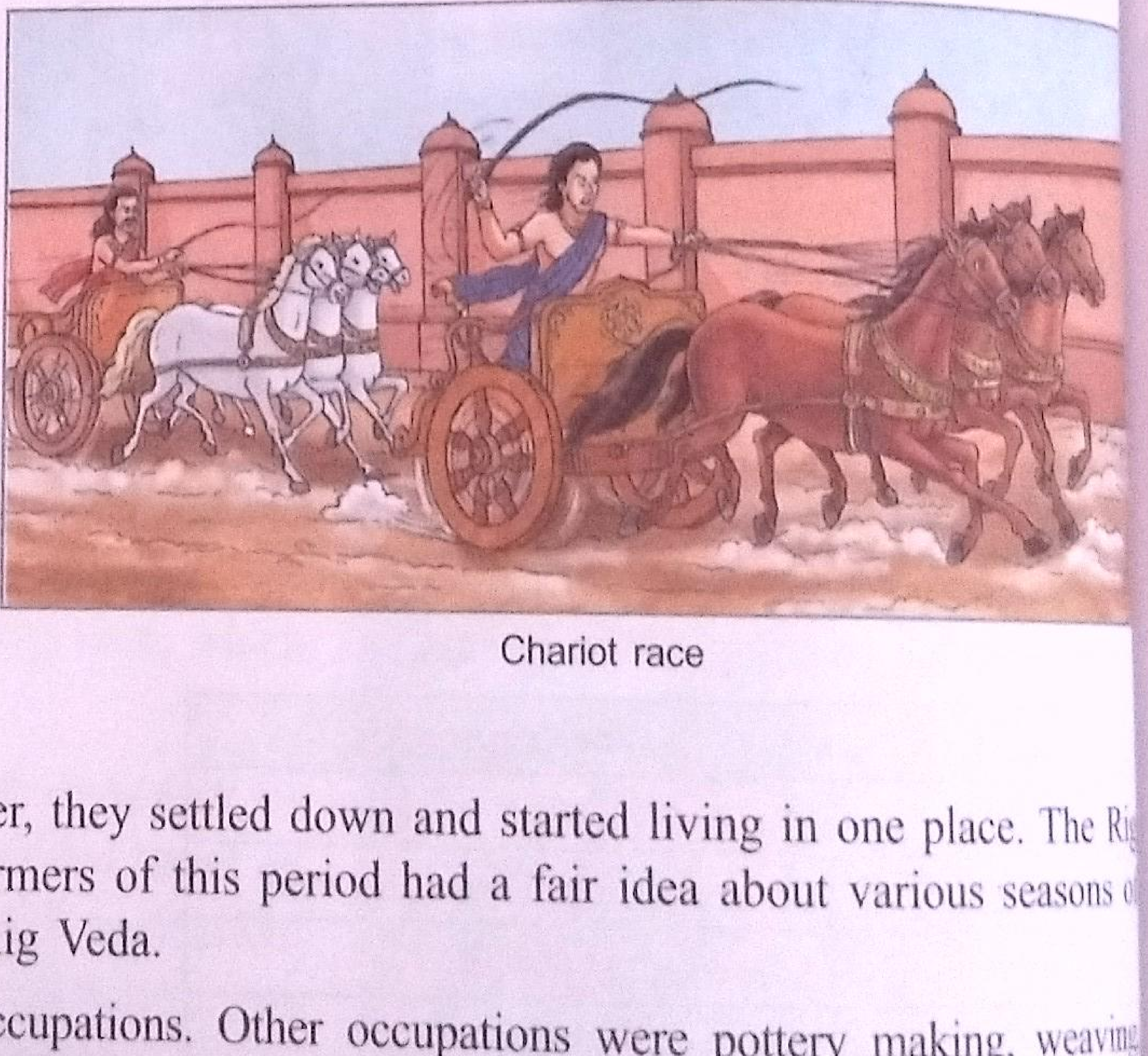
Priests chanted hymns while officiating at sacrifices – husband, wife and son also took part

Food, Dress and Amusement

The food of the Aryans consisted of fruits, vegetables, barley, and dairy products such as milk, ghee and butter. Sometimes meat was also eaten. The Vedas also refer to consumption of drinks 'Som' and 'Sura'. Whereas Sura was an intoxicating drink, consumed on festivals, Som was taken only during special religious ceremonies.

The Aryans dressed in clothes made of cotton and wool. Men wore dhotis and turbans. Women wore sarees. Both men and women wore ornaments made of gold, silver, and other metals.

Chariot racing, hunting, gambling, singing, dancing, and playing musical instruments were the favourite amusements of the Aryans. They loved to play the game of dice. The flute, the drum and lute were their favourite instruments.



Chariot race

Economic Life

In the beginning, the Aryans were pastoral. Later, they settled down and started living in one place. The Rig Veda mentions the importance of cows. The farmers of this period had a fair idea about various seasons of farming. The plough is also mentioned in the Rig Veda.

Agriculture and cattle rearing were the main occupations. Other occupations were pottery making, weaving, carpentry, jewellery-making, metal working, and fishing. Chariot making was an important occupation. Iron was discovered during this age (1000 BCE) and metal work became very important.

Priests occupied a prestigious position in society. They not only conducted religious ceremonies and sacrifices but also acted as teachers and doctors. They knew about medicinal herbs and plants and attended to the sick. Cattle were considered the symbol of wealth and status in the Aryan society. The greater the number of cows a person had, the richer he was considered. A person owning many cows was called a *Gopati*.

The use of horses was unknown in India before the coming of the Aryans. The Aryans introduced the horse in India. Horses were used for drawing chariots. Ownership of a chariot was regarded as a status symbol in the Vedic society. Boats were used for water transport.

KEY LEARNINGS

- The Early Vedic Age was based on pastoral life, cows signified status of wealth.
- This phase existed between 1500 BCE to 1000 BCE and its main source is the Rigveda.
- People worshipped the forces of nature – Inda, Agni, Varun were the chief gods.
- The four Varnas were – Brahmins, Kshatriyas, Vaishyas and Shudras. But Varna System was neither rigid nor hereditary. It was based on professions.
- Gambling, hunting and chariot racing were favourite pastimes.

ARYAVARTA : LATER VEDIC PERIOD (1000 BCE – 600 BCE)

The period between 1000 BCE to 600 BCE is known as the Later Vedic Period. The Aryans now settled in the Gangetic valley. This period has been reconstructed on the basis of two sources; the Vedas, the epics (Ramayana and Mahabharata) and the archaeological remains from the regions such as Hastinapur and the upper Gangetic plains.

POLITICAL ORGANISATION

Small tribal organisation of Early Vedic Period now expanded and took the shape of kingdoms. Some of the kingdoms established in Later Vedic Period are—

- Kuru (modern Haryana, Delhi and western part of U.P.)
- Kosala (region of Awadh in U.P.)
- Magadha (region of Patna and Gaya)
- Kashi (Benaras)

The position of the king became stronger.

- He gained absolute power and his position became hereditary.
- The king began claiming himself to be the representative of God. Powerful kings performed the *Ashwamedha* and *Rajasuya* sacrifices.
- The king assumed titles of *Samrat* and *Maharajadhiraj*. As kingdoms increased in size, the powers of the king also increased and administration became complex. The king now required more officers to help him in administration.

The *Senani* became very important as he helped the *Rajan* to expand his territory. Another officer who gained importance was the *'Sangrihitri'* or the tax collector. The two assemblies, *Sabha* and *Samiti,* lost their importance. The common people could not afford to attend the meetings of the *Sabha* and *Samiti.* Hence, these assemblies were attended only by the rich and the influential. These assemblies were now dominated by the aristocracy.

DID YOU KNOW?

- The Vedic Age wasn't just ritual-heavy–it was powered by oral science, where thousands of verses were memorised with near-perfect phonetic accuracy.
- Early Vedic people tracked time using sophisticated lunar–solar cycles long before mechanical clocks existed.
- Debates in forest assemblies questioned consciousness, reality, and the self—basically ancient philosophy labs.
- Women scholars, seer and composers actively shaped knowledge, making it intellectually radical for its time.

Social Life

The fact that the birth of a son in the family was welcomed, shows that society was patriarchal. The positio of women deteriorated during the period. Women were considered inferior to men now. They were denie education and not allowed to read Vedic literature. Polygamy was practised by the upper class and the ric including the ruling princes. Taking care of their families and serving their husbands was all women wer supposed to do, though religious ceremonies were still considered incomplete without them. Widow remarriag was looked down upon.

The Four Varnas

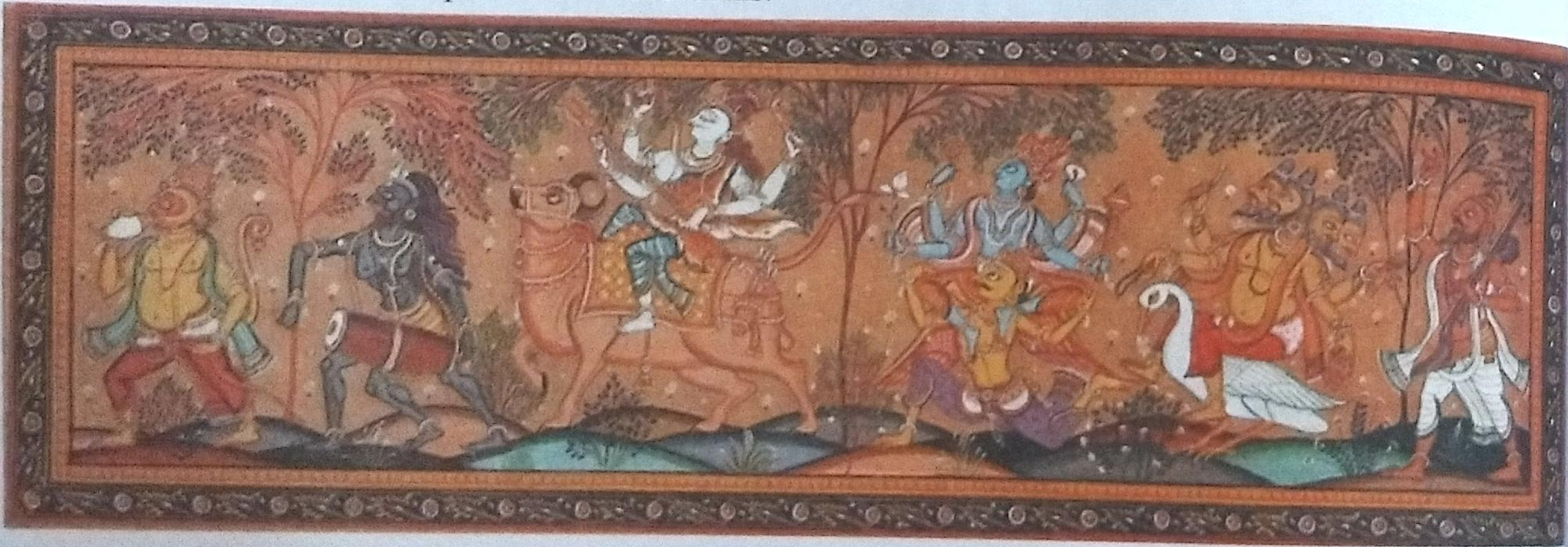
Another significant change that came during this period was the rigidity in the varna system. Now merit was discarded and birth into a family became important, which means the children of a *vaishya* or *shudra* were no longer allowed to teach, or fight on the battlefield and had to be in the same profession as their fathers, irrespective of their capabilities and interests. Varna became hereditary.

Brahmins and *kshatriyas* became the privileged class which paid no taxes. The *Vaishyas* came next, they had to pay taxes. The *shudras* had no rights and were ill-treated as they were considered as untouchables. They did lowly and menial jobs.

Religion

In the Later Vedic Period the mode of worship became complex and complicated. The Early Vedic gods such as *Indra*, Agni, Varun, etc., lost their importance and were replaced by Brahma, Vishnu and Shiva. Brahm was worshipped as the creator; Vishnu as the preserver; and Shiva, as the destroyer. A *yajna* was the mos common ritual. Sometimes, elaborate *yajnas* were organised, where a large number of priests chanted *mantra* for days. The priests were looked upon as messengers of God and enjoyed great power and prestige.

Towards the end of this period, certain people began to raise their voice against the complicated rites, rituals animal sacrifices and the importance of Brahmins.



Later Vedic Gods

Economy

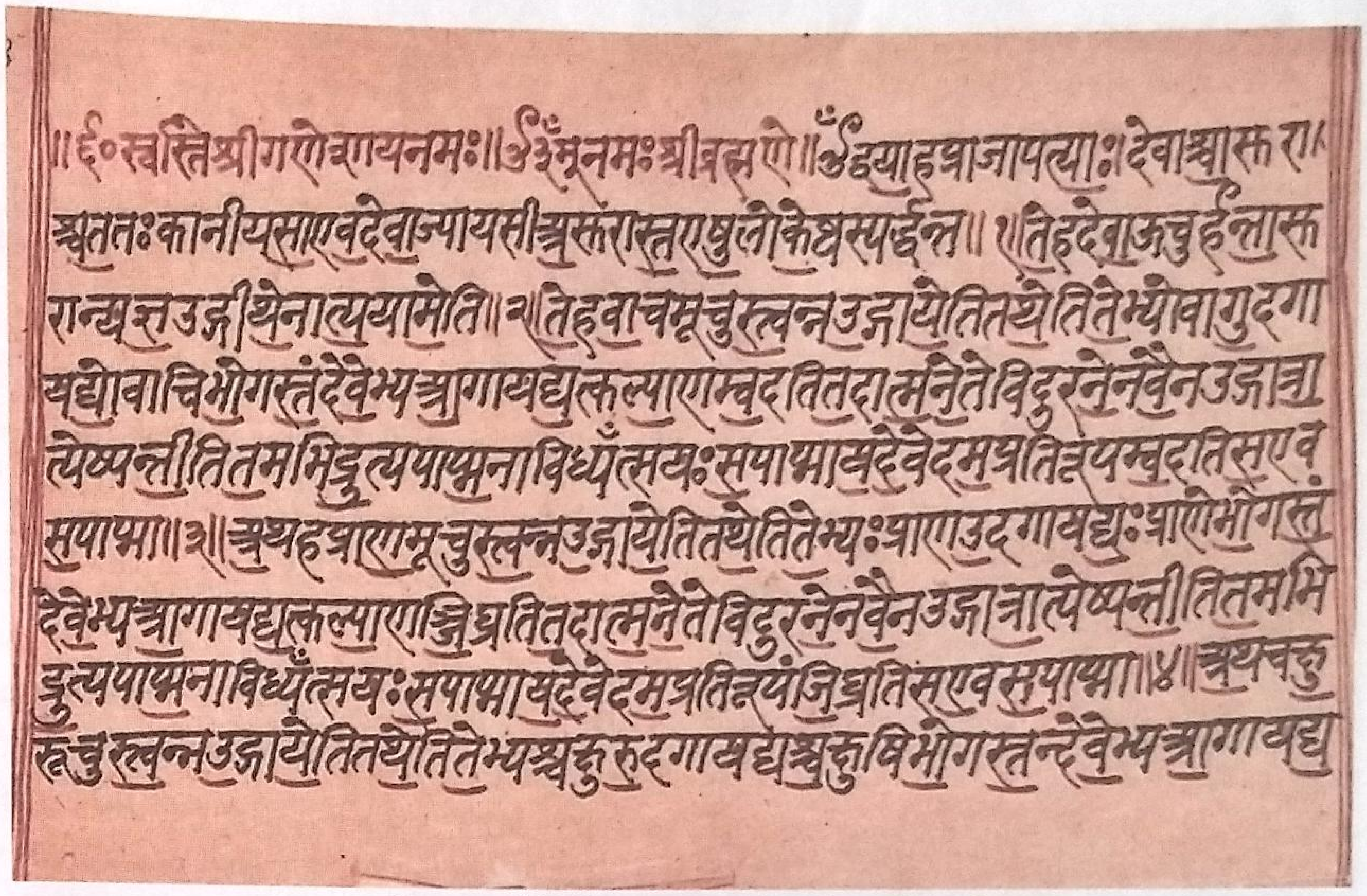
Use of iron became common during this period. A number of tools and weapons were made with iron. Thoug agriculture was still the most important occupation, other crafts such as weaving, leather work, potter carpentry and jewellery making developed. Rice began to be cultivated along with that of barley and whea Trade flourished in this period and there was growth of towns and cities towards the end of this period. Trad was another major occupation, caried mainly through barter. Now the traders had organised themselves int various guilds or associations which looked after their interests. Early forms of currency such as '*Nishka*', '*Satamana*' and '*Krshnala*' were also used as medium of exchange. Vedic texts mention ships, showing active inland and coastal trade during this time.

The Rig Vedic people lived in small villages where they pursued their respective occupations. Towards the end of the Later Vedic period several towns like Ayodhya, Hastinapur, Kaushambi, Mathura, Indrapratha, etc. had developed.

Literature

Three *Vedas* – *Sama Veda*, the *Yajur Veda* and the *Atharva Veda* were composed. The *Upanishads* were also composed towards the end of this period.

The *Upanishads* dwell on philosophical aspects of human life. Questions such as : *What is God? Who is God? What is life? Where does one go after death?* are dealt in them. They lay stress on *Karma* (action) and *Moksha* (salvation). According to the Upanishads, a man's condition and position are determined by his actions in his previous life. The Aryans believed in *'dharma'* i.e., righteous living. As time progressed, superstitions and misbeliefs crept into religion.



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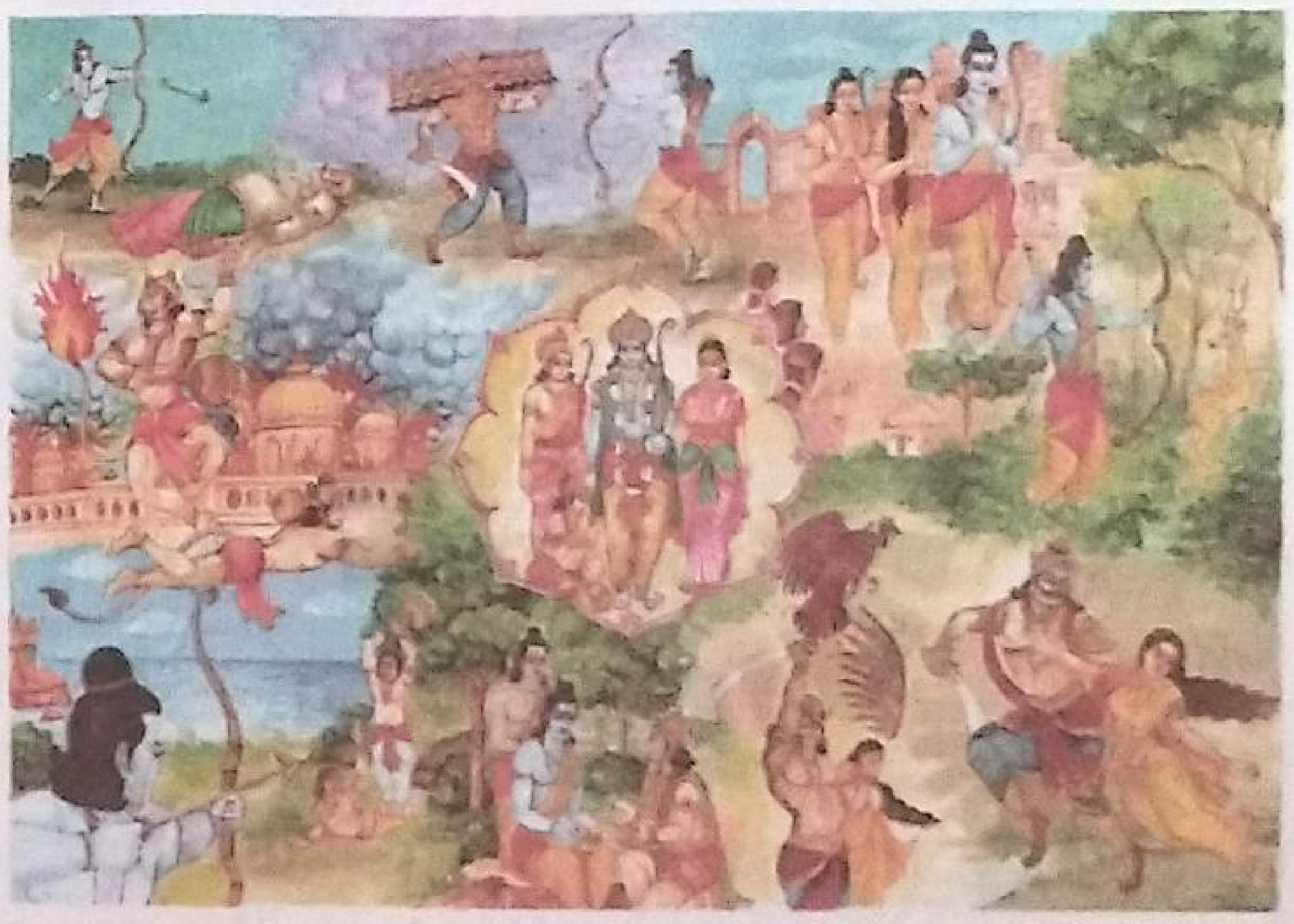
Page of Brihadaranyaka Upanishad

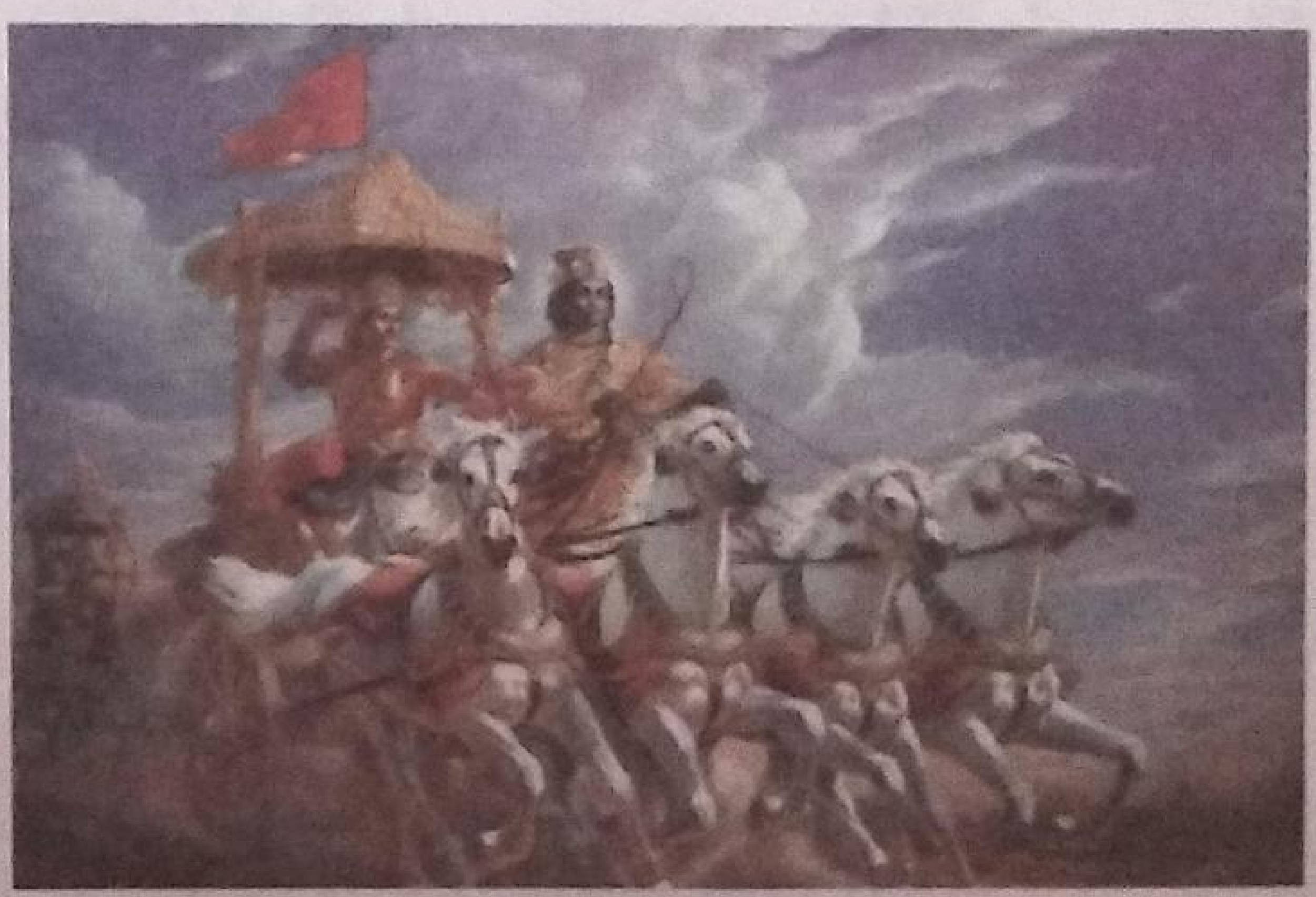
This period also witnessed the writing of the two great epics – the *Ramayana* and the *Mahabharata*.



Scenes from the Ramayana

It was written by Sage Valmiki in Sanskrit. It tells the story of Rama, an incarnation of Lord Vishnu. It contains ideal characters like Rama, Lakshmana, Bharat, Hanuman and Sita. It describes a war between Rama and Ravana, the ruler of Lanka. Rama kills Ravana and rescues Sita.

It was written by Sage Ved Vyas in Sanskrit. It is a long epic that describes the great battle fought between the *Pandavas* and the *Kauravas* at Kurukshetra.



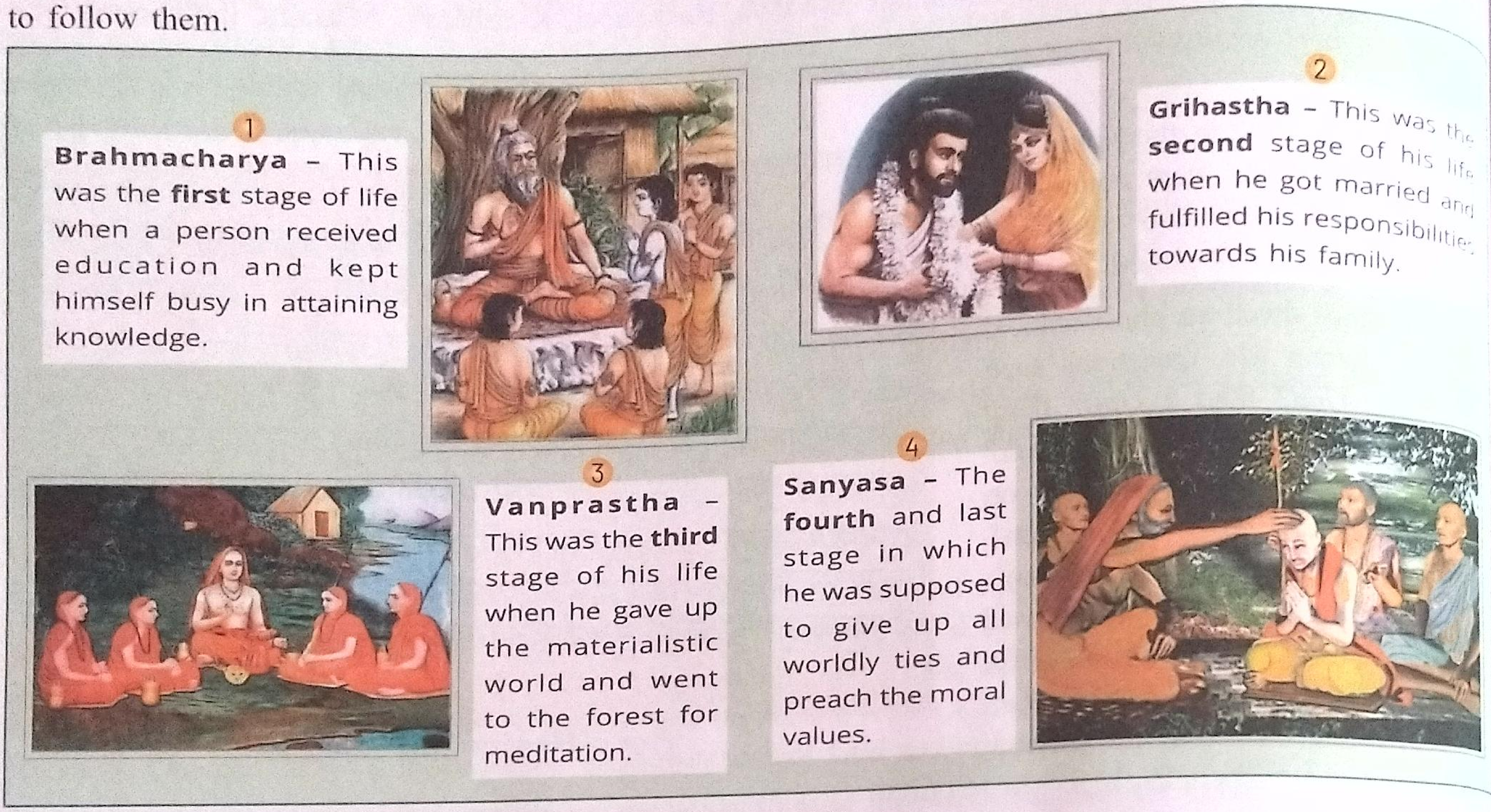
Scene from the Mahabharata

The epics are the main source of information about the political and social conditions prevailing in the Epic Age. They are not only of great literary value, but they also reveal high ideals of life. The *Bhagvad Gita,* a part of *Mahabharata,* is one of the sacred books of the Hindus. It teaches that the soul is immortal. Though the body dies, the soul does not.

The Aryans also studied various branches of science. They made accurate calendars and could predict the time of eclipses. In mathematics they were fairly advanced as they knew *Anka ganita* (arithmetic), *Rekha ganita* (geometry) and *Beej ganita* (algebra), astronomy and astrology *(jyotish).*

Four Stages of Life (Ashramas)

Ideally a person's life was divided into four stages or Ashramas—each consisting of about 25 years. They are — Brahmacharya, Grihastha, Vanprastha and Sanyasa. Though this division was not rigid but upper the varnas were expected to follow it. Each Ashrama had certain duties attached to it, and the ideal citizen had to follow them.



① **Brahmacharya** – This was the **first** stage of life when a person received education and kept himself busy in attaining knowledge.

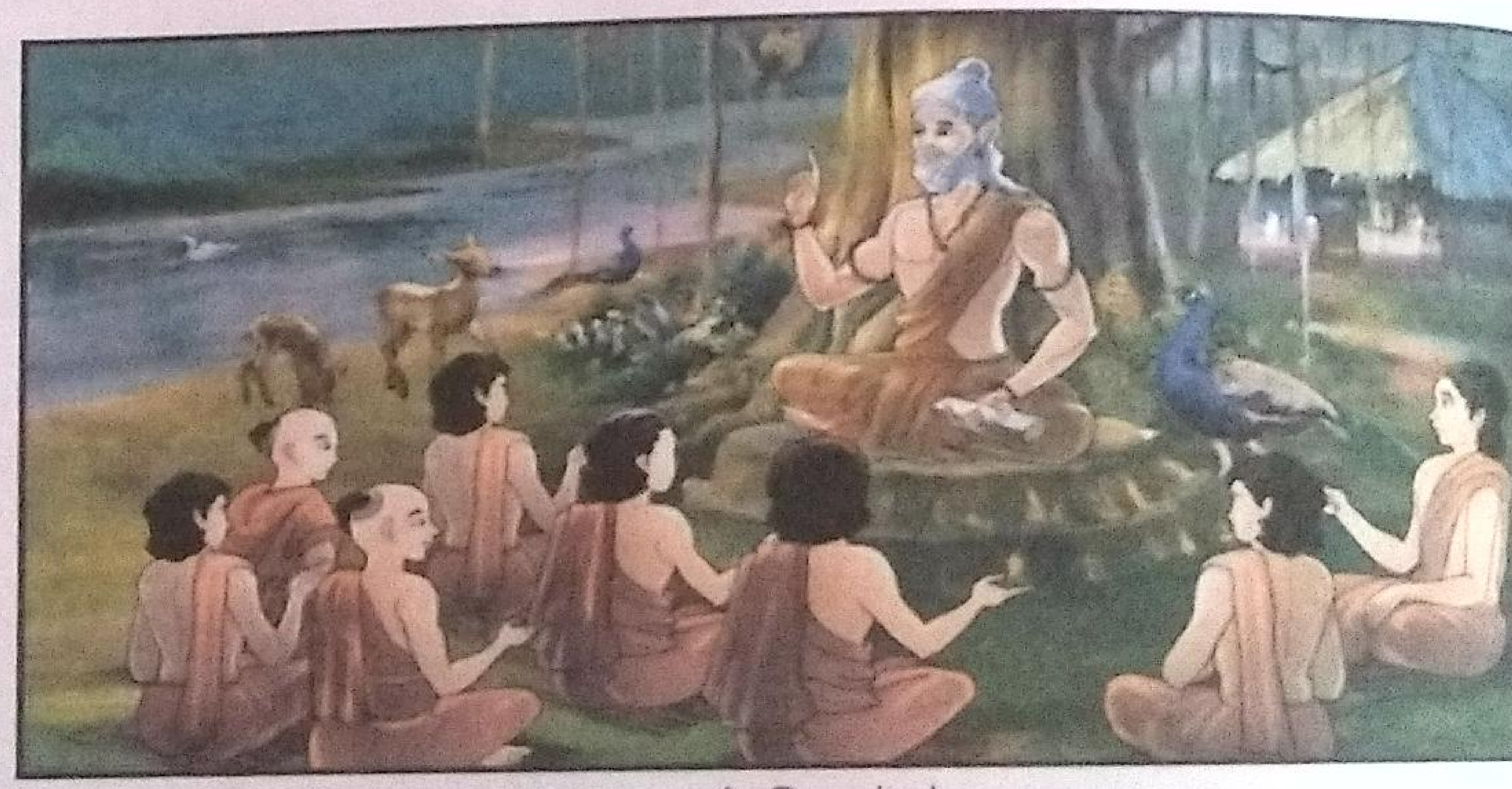
② **Grihastha** – This was the **second** stage of his life when he got married and fulfilled his responsibilities towards his family.

③ **Vanprastha** – This was the **third** stage of his life when he gave up the materialistic world and went to the forest for meditation.

④ **Sanyasa** – The **fourth** and last stage in which he was supposed to give up all worldly ties and preach the moral values.

Stages of life

Gurukul System of Education



A Gurukul

The *Guru-Shishya* tradition was followed in education. A student (Brahmachari) of 7 years was sent to Gurukul (family of a teacher) where he lived with his Guru. Vedic literature, mathematics, medicines, astronomy, astrology etc. were the subjects students would learn. Education was transmitted orally.

They also learnt, sword fighting, archery, wrestling, etc. to be used on battlefields.

Students served their guru and paid *gurudakshina* or remuneration after the completion of their education, according to their ability.

Engage and Reflect

Do you think gurukul system of education was better suited to all round development of a student's personality? Why / why not? Give reasons.

AN EXCERPT

Vedic civilisation marks one of the earliest cultural foundations of the Indian subcontinent, emerging around the second millennium BCE. it grew around the Vedas—ancient texts that shaped social life, rituals, philosophy, and ideas about duty (dharma) and order (rita). Society was largely pastoral at first, later becoming agrarian, with growing settlements, assemblies, and early political structures. What makes the Vedic world fascinating is its intellectual vibe: people weren't just surviving, they were questioning reality, nature, and self-planting the seeds for Indian philosophy, science, and spiritual thought that still echo today.

KEY LEARNINGS

- Later Vedic Period extended from 1000 BCE to 600 BCE. Smaller tribal organisations of early period expanded into kingdoms.
- Discovery of iron facilitated clearing of forests and improved iron tools leading to improved farming.
- Varna System became rigid, Brahamins and Kshatriyas emerged as the privileged classes which paid no taxes.
- In the Later Vedic Period, the mode of worship became ritualistic and complicated. Three gods became all important—Brahma (creator), Vishnu (preserver) and Shiva (destroyer).

GLOSSARY

Upnishad	:	Vedic treatises written toward the end of Vedic Period, dealing with philosophical aspects of human life.
Purohit	:	The chief priest
Sabha and Samiti	:	Popular assemblies vested with powers of deliberation and decisions.
Pastoral	:	Nomadic herders.
Ashvamedha	:	A religious ritual to establish supreme power over the area through which the sacrificial horse wandered unhindered.
Rajasuya	:	A ritual performed to bestow supreme power on the king when he ascended the throne.
Incarnation	:	A God or deity born as a human being.
Ashramas	:	The four stages of life – Brahmacharya, Grihastha, Vanaprastha and Sanyasa.

Exercises

A. Multiple choice questions (MCQs).

1. Read the two statements given below about the Rigveda. Select the option that shows the correct relationship between (A) and (B).

(A) : The Rigveda is regarded as the first testament of mankind.

(B) : Historians place its period of composition as 1500 BCE.

(a) (B) contradicts (A)

(b) (B) is the reason for (A)

(c) (A) is true but (B) is false

(d) (A) and (B) are independent of each other

2. Identify the incorrectly matched pair related to the content and purpose of the Vedas:

(a) Rig Veda : Earliest Veda

(b) Sama Veda : Songs

(c) Yajur Veda : Rituals

(d) Atharva Veda : Earliest Veda

3. Which archaeological evidence suggests the use of iron during the Later Vedic period?
   (a) Painted Grey Ware pottery
   (b) Iron implements such as hammers and ploughs
   (c) Stone tools
   (d) Copper utensils

4. Identify the features of Painted Grey Ware pottery used by the Later Vedic people:
   P : Made from high-quality clay
   Q : Contains geometric patterns
   R : Used only for religious rituals
   S : Evidence found in Hastinapur
   (a) P and Q (b) R and S (c) P and R (d) Q and S

5. What aspect of Rig Vedic governance reflects democratic tendencies?
   (a) The king's autocratic authority
   (b) Importance of the Sabha and Samiti
   (c) Hereditary succession of kings
   (d) Commanders managing administrative duties

6. Identify the practices related to Rig Vedic women that reflect their high status:
   P : Participation in yajnas
   Q : Freedom to remarry
   R : Existence of female scholars
   S : Practice of purdah system
   (a) P and S (b) P and Q (c) P, Q, and R (d) Q, R, and S

7. Identify the incorrectly matched pair related to Rig Vedic society:
   (a) Tribe : Jana
   (b) Gramin : village headman
   (c) Nishka : Pottery
   (d) PGW : Painted Grey Ware

8. Which intoxicating beverage was consumed by the Aryans and used in religious yajnas?
   (a) Soma (b) Ghee (c) Milk (d) Tea

9. Read the two statements given below about the the conditions of women in the Rig Vedic society and sele
   the option that shows the correct relationship between (A) and (B).
   (A) : The Rig Vedic society was patriarchal, and the oldest male member of the family was called
   Grihapati.
   (B) : The Rig Vedic Aryans followed the purdah system, restricting women's participation in family matters
   (a) (B) contradicts (A).
   (b) (A) is true, but (B) is false.
   (c) (B) is the reason for (A).
   (d) (A) and (B) are independent of each other

10. Identify the odd one out among the Rig Vedic gods who were worshipped:
    (a) Indra (b) Agni (c) Varuna (d) Shiva

B. Fill in the Blanks.

1. The Aryans came to India from ______________.
2. The Aryans settled down first in the region now called the ______________.
3. The two historical sources of the Vedic Age are ______________ and ______________.
4. The word Varna means ______________.
5. The two popular assemblies of the Aryans were called ______________.
6. The ______________ was discovered in the Vedic period which led to development in agriculture.
7. The ______________ is the most important Veda.

C. Match the following items given in column A with those in column B.

	Column A	Column B
1.	Samiti	A. Chief priest
2.	Brahmanas	B. Commander of the army
3.	Vaishyas	C. An assembly made up of all the people of the village
4.	Purohit	D. Traders and cultivators
5.	Senani	E. Priests

D. Very short answer type questions

1. Name the earliest Veda.
2. What is meant by PGW ?
3. Who was the Purohit?
4. Name two pastimes of early Aryans.
5. What were the Sabha and Samiti?
6. Name the four varnas.
7. What were the four Ashramas?
8. Name the Chief gods of the Early Vedic period.
9. Name the Chief gods of the Later Vedic period.
10. Which system of education was pevalent during the Vedic period?

E. Short answer type questions.

1. Describe the chief sources of the Vedic period.
2. Differentiate between Early Vedic and Later Vedic literature.
3. Differentiate between society of Early and Later Vedic periods.
4. Why did Aryans attach so much importance to religious sacrifices?
5. Differentiate between the economy of the Early and Later Vedic period.
6. How did the Varna system change during the Later Vedic period?
7. Throw light on the religious practices of Early Vedic period.

F. Long answer type questions.

1. Describe the main aspects of the Varna system during the Vedic Age.
2. What were the four Ashramas? Discuss the duties related To each one of them.
3. Compare and contrast the political organisation of the Early and Later Vedic periods.
4. Compare the social life during the Early and Later Vedic periods.
5. Compare and contrast the governance of the Early and Later Vedic periods.
6. Throw light on the system of education during the Vedic period.
7. Discuss the literature of the Later Vedic period.

G. Assertion-Reason questions.

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)

(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(c) (A) is correct but (R) is wrong

(d) (A) is wrong but (R) is correct

1. **Assertion (A):** In the Vedic period a man's life was divided into four Ashramas.
   Reason (R): These were Brahmins, Kshatriyas, Vaishyas and Shudras.
2. **Assertion (A):** The Nature-gods of the Rigvedic people became less important during the Later Vedic Age.
   Reason (R): In Later Vedic Age gods such as Prajapti, Vishnu and Shiva became prominent.
3. **Assertion (A):** Life was simple during the Early Vedic period.
   Reason (R): Life became complex and ritualistic during the Later Vedic period.

H. Case-based questions.

Read the given text and answer the following questions

"Despite the presence of some women philosophers and the references to a few queens participating in the coronation rituals, women were considered subordinate to men, and were not involved in any major decision making." .

1. What changes occurred in the status of women from the Rig Vedic to the Later Vedic period?
2. Despite the decline in status, what rights or practices still honoured women during the Later Vedic period?
3. What was the Swayamvara system?

I. Map Based Work

Mark and label the extent of Early and Later Vedic Civilisation on a map of India in different colours.

AI Buddy

Scan the QR code to :

- get answers to your queries/questions.
- play with AI.
- create topicwise notes.
- generate topicwise assignments.

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Scan the QR code to access the WORKSHEET of this chapter.

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8

Rise of Kingdoms and Republics, and Early Empires

KEY CONCEPTS

- Administration of Early Empires: Magadha, Mauryas and Guptas
- Quest for Knowledge, Educational Heritage, Institutions, Knowledge Traditions and Culture
- Trade, Trade Routes, Guilds, Merchants, Crafts and Industries

The period from ancient to early medieval India was marked by great developments in knowledge, culture, trade, and economic life. This chapter explores the quest for knowledge, cultural practices, traders and trade routes, guilds and merchants, and the growth of crafts and industries that shaped Indian society. During different historical periods such as the Mauryan, Kushana, Gupta, and Post-Gupta ages, India became a centre of learning, art, and commerce. Great universities like Nalanda University attracted students from many parts of Asia, showing the importance given to education and intellectual growth. At the same time, religious and cultural traditions developed through temples, monasteries, literature, festivals, and art forms that reflected the rich diversity of Indian society.

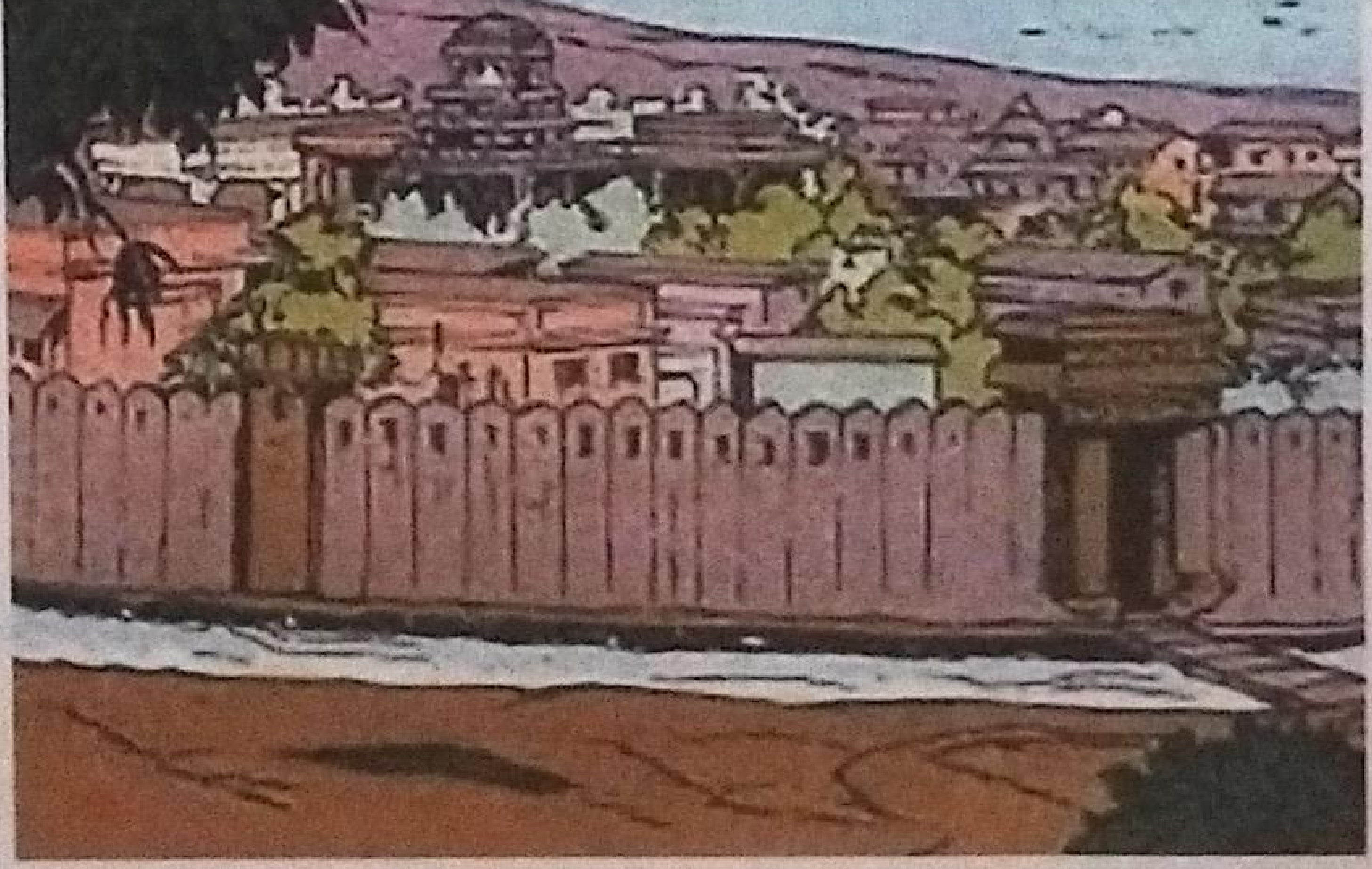
Trade and commerce played a major role in connecting different regions of India and linking India with other parts of the world. Traders travelled through important land routes such as the Uttarapatha and Dakshinapatha and used sea routes across the Arabian Sea and the Bay of Bengal. Merchant groups and guilds organised trade activities, maintained quality, and protected the interests of craftsmen and traders. Crafts and industries such as textile weaving, metalwork, pottery, sculpture, and jewellery making flourished under stable political conditions. Together, these developments in education, culture, trade, and industry contributed to the economic prosperity and cultural richness of ancient and early medieval India.

ADMINISTRATION OF EARLY EMPIRES

The administration of magadha

The kingdom of Magadha was one of the most powerful Mahajanapadas (great kingdoms) of ancient India. It was located in present-day Bihar and had fertile land, rich iron mines, and important river routes. These advantages helped Magadha grow strong both politically and economically. Important rulers such as Bimbisara, Ajatashatru, and later Mahapadma Nanda strengthened the kingdom and expanded its territory.

The king was the head of the administration in Magadha. He held supreme authority over the army, justice, and revenue. The king was assisted by ministers and officials who helped in



Reconstruction of Patliputra (Capital of Magadha) decision-making and managing the kingdom. The administration was organised to maintain law and order, collect taxes, and ensure smooth governance. The capital of early Magadha was Rajgir, which was later shifted to Pataliputra because of its strategic location near rivers and trade routes.

Magadha was divided into different administrative units for better control. Provinces and districts were governed by appointed officials who collected taxes and maintained peace. Villages formed the smallest unit of administration. Village headmen and local elders played an important role in managing village affairs. This system helped the king control a large territory effectively.

The revenue system of Magadha was well developed. Land revenue was the main source of income. Farmers paid a share of their agricultural produce as tax to the state. The kingdom also collected taxes from trade, crafts, and forest products. Since Magadha had rich iron deposits, control over these resources added to its wealth. The income collected was used to maintain the army, build forts, and support public works.

The military administration of Magadha was strong and efficient. The rulers maintained a large standing army consisting of infantry, cavalry, chariots, and elephants. Forts were built to protect important cities. Ajatashatru is known to have introduced new war machines and strengthened the defences of the kingdom. A powerful army helped Magadha defeat neighbouring kingdoms like Kosala and Vajji.

The Mauryan Administration

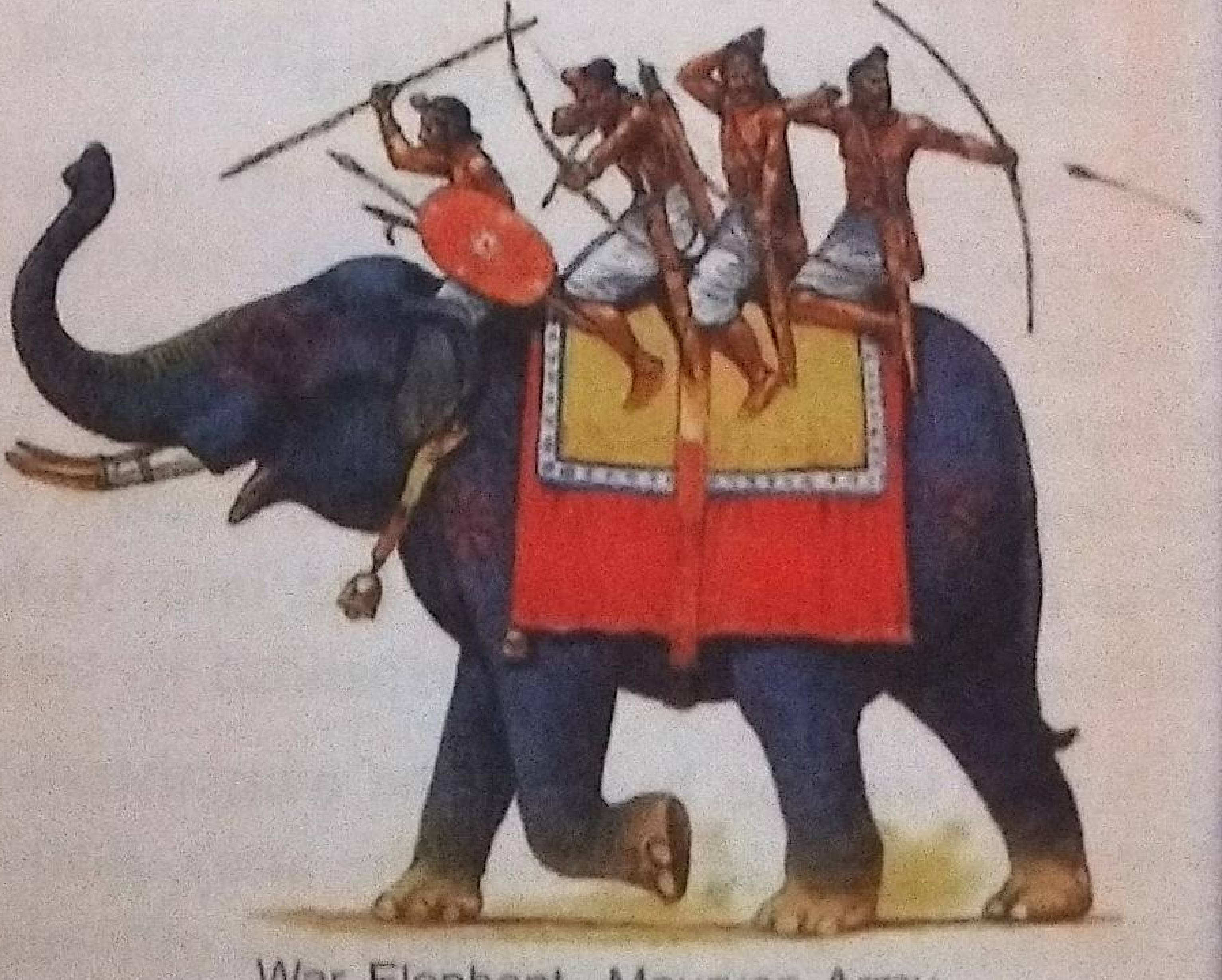
The Mauryan administration was one of the most well-organised and powerful systems of governance in ancient India. The Mauryan Empire was founded by Chandragupta Maurya in 321 BCE. It reached its greatest extent under Ashoka, who ruled almost the entire Indian subcontinent. The Mauryan rulers created a strong central government to maintain law and order, collect taxes, and manage the vast empire effectively.

At the top of the administration was the king. The king was the supreme authority in military, judicial, and executive matters. He was assisted by a council of ministers known as the Mantriparishad. These ministers advised the king on important matters of governance. The famous book Arthashastra, written by Kautilya (Chanakya), provides detailed information about Mauryan administration. It describes how the king should govern, collect taxes, maintain spies, and ensure justice in the kingdom.

The Mauryan Empire was divided into provinces for easy administration. Each province was governed by a prince or a trusted official. The main provinces included Taxila, Ujjain, Tosali, and Suvarnagiri. The provincial governors were responsible for maintaining law and order, collecting taxes, and supervising local officials. These provinces were further divided into districts and villages. The village was the smallest unit of administration, and the village headman looked after the daily affairs of the village.

The Mauryan administration had a well-organised revenue system. Land revenue was the main source of income for the state. Farmers had to pay a portion of their produce as tax. The state also earned revenue from trade, forest products, mining, and irrigation. Special officers were appointed to measure land and collect taxes. The government maintained records of income and expenditure carefully.

The Mauryan rulers also developed a strong military system. The army consisted of infantry, cavalry, chariots, and elephants. A special war office with different committees managed the army. The empire also maintained a navy to control rivers and coastal areas. The army played a major role in protecting the empire from external attacks and maintaining internal security.

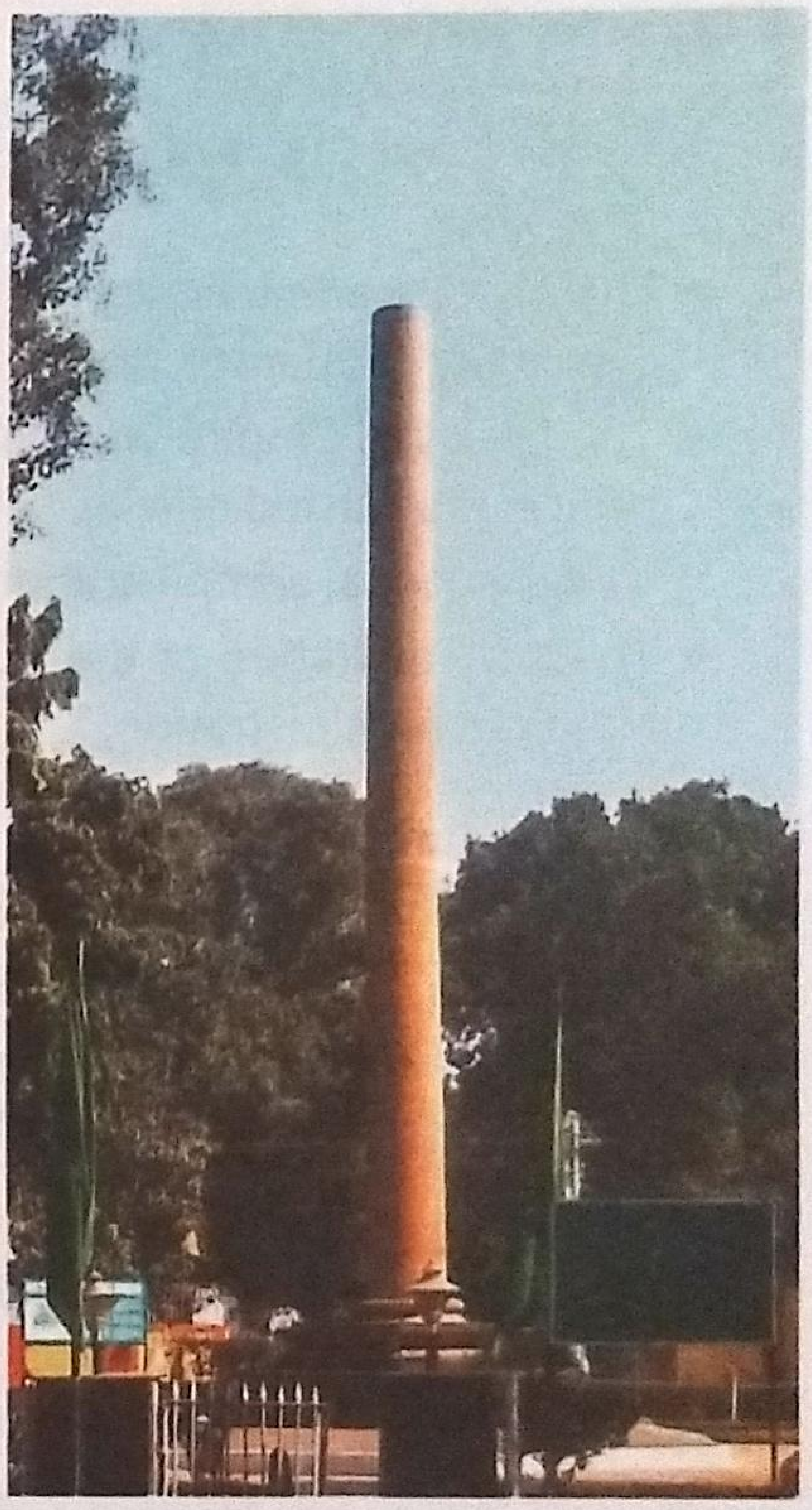


War Elephant–Mauryan Army

Another important feature of Mauryan administration was the spy system. Spies were appointed to keep an eye on officials and the public. They reported directly to the king. This helped in preventing corruption and ebellion. Justice was strictly administered, and punishments were often severe to maintain discipline and order.

Under Ashoka, administration became more focused on welfare. After the Kalinga War, Ashoka adopted he policy of Dhamma (moral law). He appointed special officers called Dhamma mahamatras to spread moral values and look after the welfare of the people. He built roads, hospitals, rest houses, and planted trees along ighways for the benefit of travelers.

The Gupta Administration


Allahabad pillar inscription

The administration of the Gupta Empire was well organised and efficient, though less centralized than the Mauryan administration. The Gupta period is often called the "Golden Age of India" because of great progress in art, literature, science, and trade. The empire was founded by Chandragupta I and reached its height under Samudragupta and Chandragupta II. Their strong leadership helped maintain peace and stability across the empire. Allahabad pillar inscription describes success of samudragupta.

The king was the head of the administration. He enjoyed great power and was considered the protector of the people. However, unlike the Mauryan rulers, Gupta kings followed a more decentralised system. They were assisted by a council of ministers who advised them on matters of governance, military, and finance. Important officials included the Kumaramatya (high-ranking official), Sandhivigrahika (minister for war and peace), and Mahadandanayaka (chief judicial officer).

The Gupta Empire was divided into provinces called Bhuktis. Each province was governed by an official known as Uparika. The provinces were further divided into districts called Vishayas, which were administered by Vishayapatis. Below the districts were villages, which formed the smallest administrative units. Village administration was often managed by local elders and headmen. This shows that local self-government was an important feature of Gupta administration.

The Gupta rulers followed a well-structured revenue system. Land revenue was the main source of income. Farmers paid taxes either in cash or kind. The rate of land tax was generally moderate compared to the Mauryan period. The government also collected taxes on trade, crafts, and industries. In some cases, land was granted to Brahmins and officials, known as land grants, which became common during this period.

The judicial system was simple but effective. The king was the highest authority in judicial matters. Courts were established at different levels, including village and district levels. Laws were based on ancient Hindu legal texts and customs. Fines were common punishments, and severe punishments were less frequent compared to the Mauryan period.

The military administration of the Guptas was strong and efficient. The army consisted of infantry, cavalry, chariots, and elephants. The king was the supreme commander of the army. The Guptas maintained good diplomatic relations with neighbouring states, and many smaller kingdoms accepted Gupta authority and paid tribute.

Engage and Reflect

1. The kingdom of Magadha was located around
   (a) Bihar (b) Himachal Pradesh (c) Rajsthan (d) Punjab
2. The Mauryan administration had a well organized
   (a) Revenue system (b) Military system (c) Spy system (d) All of these
3. ________________ was the main source of income during Gupta period.
4. Explain in brief about Judicial system under the Gupta rulers.

KEY LEARNINGS

- The king was the head of the administration in Magadha. He held supreme authority over the army, justice, and revenue.
- The military administration of Magadha was strong and efficient. The rulers maintained a large standing army consisting of infantry, cavalry, chariots, and elephants.
- The Mauryan Empire was divided into provinces for easy administration. Each province was governed by a prince or a trusted official.
- Under Ashoka, administration became more focused on welfare.
- The administration of the Gupta Empire was well organised and efficient, though less centralised than the Mauryan administration.

QUEST FOR KNOWLEDGE, EDUCATIONAL HERITAGE, INSTITUTION, KNOWLEDGE TRADITIONS, AND CULTURE

Mauryan Art and Architecture

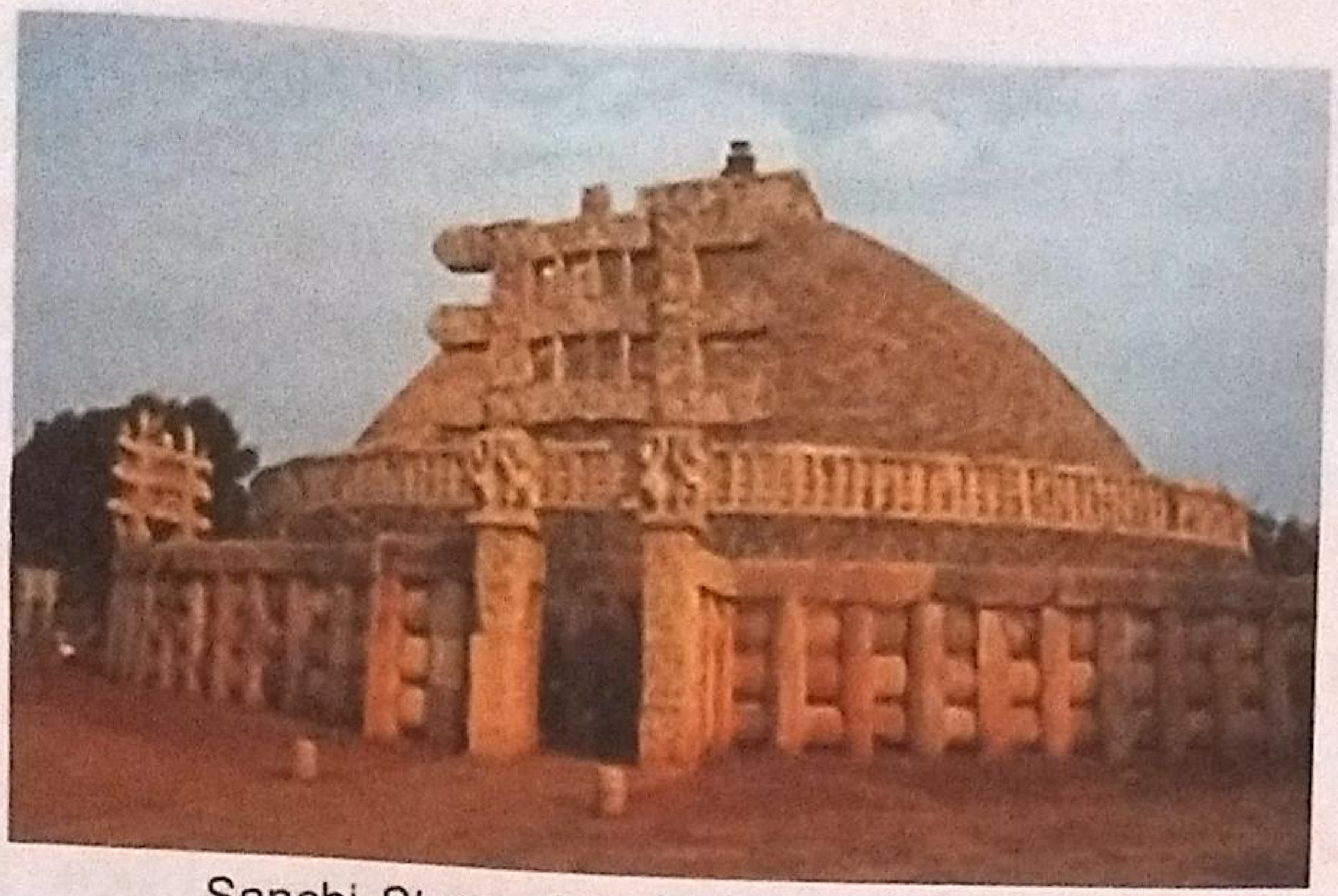
The Mauryan period is one of the most remarkable periods in ancient Indian history, not only for its political achievements but also for its contributions to art and architecture. The Mauryan rulers, especially Ashoka, encouraged building projects that reflected the grandeur of the empire and promoted religious and moral values. Mauryan architecture is known for its simplicity, elegance, and use of durable materials like stone.

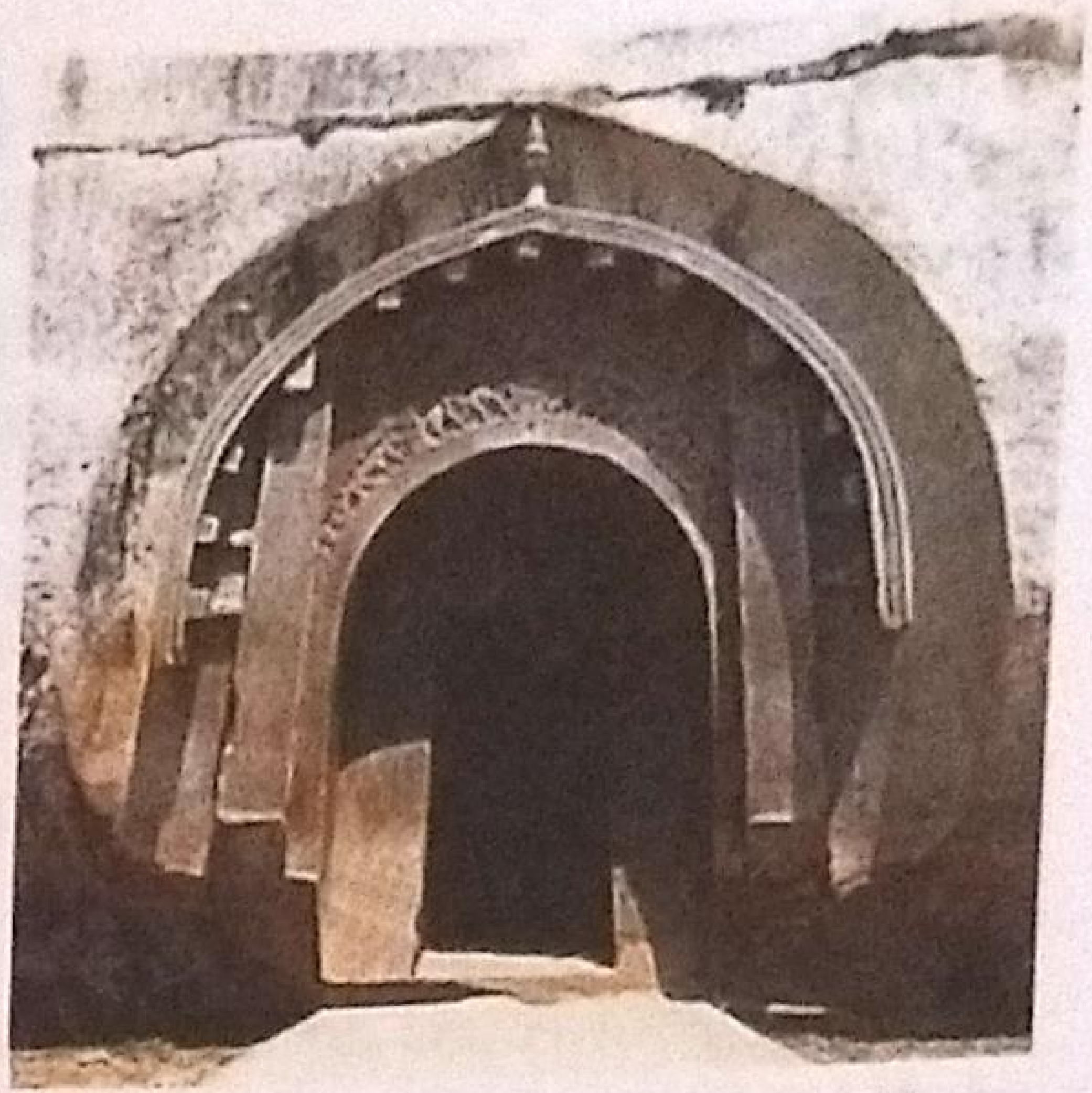
One of the most famous contributions of Mauryan architecture is the Ashokan pillars. These were tall, polished sandstone pillars placed at important locations across the empire. The pillars often had inscriptions called edicts, which spread Ashoka's message of Dhamma (righteousness, non-violence, and moral conduct). Many pillars were topped with beautifully carved animals like lions, bulls, and elephants. The Lion Capital of Sarnath is the best-known example and was later adopted as the National Emblem of India. These pillars are notable for their precise craftsmanship, smooth polish, and artistic beauty.

Ashokan Pillar

Lion Capital of Ashoka,Sarnath (U.P.)

Another significant aspect of Mauryan architecture is the construction of stupas. Stupas are dome-shaped structures built to enshrine the relics of the Buddha. The Great Stupa at Sanchi is a fine example of this. Stupas often had gateways (toranas) decorated with carvings depicting scenes from the life of the Buddha. Ashoka is believed to have commissioned many stupas throughout India to promote Buddhism. These structures were not only religious centres but also symbols of Mauryan artistic skill and architectural planning.


Sanchi Stupa, Sanchi (Madhya Pradesh)


Barabar Caves, Near Gaya, Bihar

The Mauryan period also saw the creation of rock-cut architecture, such as the Barabar Caves in Bihar. These caves were carved out of granite and polished to a mirror-like finish, showing advanced techniques. They were used by monks for meditation and religious practices. The caves often had simple yet elegant designs, reflecting the spiritual focus of the time.

Yakshi from Didarganj

Mauryan architects also created large stone statues, such as the Yaksha and Yakshi figures. These sculptures were often placed near stupas and other religious sites. They show the Mauryan mastery over stone carving, realistic human forms, and attention to detail.

Mauryan Literature

Literature during this period reflected the empire's political, religious, and social life. The most important literary works of the Mauryan period were mainly inscriptions, edicts, and religious texts rather than fictional stories or poetry.

The famous ruler Ashoka played a crucial role in promoting literature. He left behind numerous Ashokan Edicts, inscribed on pillars and rocks across his empire, written in simple language like Prakrit, to communicate moral messages and ethical guidelines to his people. These edicts emphasised non-violence, tolerance, truthfulness, and respect for all religions, showing the spread of Buddhist teachings.

Apart from inscriptions, the Mauryan period saw the compilation and propagation of Buddhist and Jain literature. Buddhist texts such as the Tripitaka were recorded orally during this period and later written down. Jain scholars also contributed significantly, writing in Prakrit about ethics, conduct, and philosophy. The period marked the growth of writing as a medium to communicate moral, political, and religious ideas, rather than artistic storytelling.

Another important contribution was the use of Sanskrit for official and religious purposes. Although Sanskrit literature flourished more prominently in later periods, the Mauryan period laid the foundation for classical Sanskrit prose and political writings. Arthashastra by Kautilya is one of the key texts of this era. It is a detailed treatise on statecraft, administration, and diplomacy, showing that literature was not limited to religion but also addressed governance and law.

Development of science during the Mauryan Period

The Mauryan period saw important developments in science and technology. During this time, scientific knowledge was closely linked with practical needs such as administration, architecture, agriculture, medicine, and trade.

One of the major areas of scientific advancement was medicine. Scholars like those in Buddhist monasteries and Jain centers studied herbs and their medicinal properties, which were compiled in texts that guided treatments and surgeries. Medical practices were influenced by the knowledge of Ayurveda, which emphasised balance in the body and use of natural remedies.

Astronomy and mathematics were used for calendars, trade, and administration. Scholars observed celestial events and applied mathematical principles for land measurement and taxation purposes. The Mauryan administration, guided by Kautilya in his Arthashastra, applied practical science in areas such as irrigation, road building, and city planning, showing the integration of scientific knowledge into governance.

Culture during the Mauryan Period

Mauryan culture reflected a blend of art, religion, architecture, and social practices, influenced by the empire's vastness and diversity.

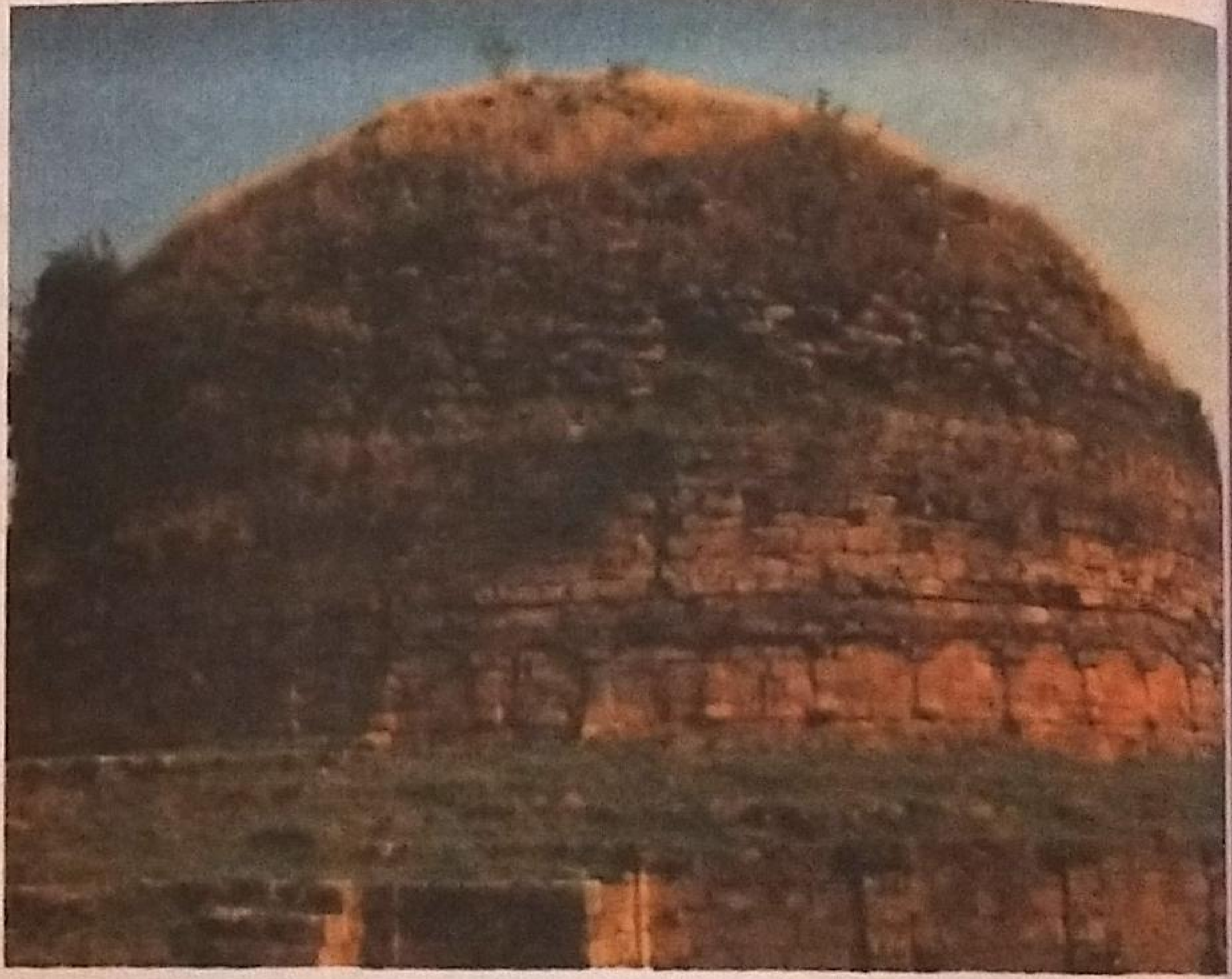
Religion played a central role in shaping culture during this period. Ashoka, after embracing Buddhism, actively promoted moral and ethical values through art, architecture, and inscriptions. Buddhist ideals of non-violence, compassion, and tolerance became an important part of social life. The period also saw support for Jainism and Vedic traditions, showing the acceptance of multiple faiths.

Kushana Period

The Kushana period (1st–3rd century CE) was an important era in ancient Indian history. The Kushanas were a Central Asian tribe who ruled over a large part of northern India, including regions of present-day Pakistan, Afghanistan, and northern India. Their empire played a significant role in the cultural exchange between India, Central Asia, and the Roman world through trade along the Silk Route. This period is especially notable for its contributions to art and architecture, which reflected a blend of Indian, Persian, and Greek influences.

Art and Architecture

The Kushana period is famous for its Buddhist art, especially the development of the Gandhara and Mathura schools of art. The Gandhara school (in present-day Pakistan and Afghanistan) combined Indian themes with Greco-Roman artistic styles. Sculptures from Gandhara often depicted Buddha in a human form for the first time, with features like wavy hair, draped robes, and realistic body proportions influenced by Greek art. On the other hand, the Mathura school (in present-day Uttar Pradesh, India) developed a more Indian style, characterised by robust figures, round faces, and elaborate jewellery. Mathura sculptures were mostly made of red sandstone and often depicted not only Buddha but also Hindu and Jain deities.



Kanishka Stupa, Peshawar

The Kushanas also contributed to architectural development, particularly in the construction of stupas, monasteries (viharas), and temples. The Devni-Mori stupa and Kushan-era monasteries were significant examples of Buddhist architecture. These structures often included intricately carved gateways, railings, and sculptures that served both religious and decorative purposes. Kushana kings, such as Kanishka, were great patrons of art and architecture. The famous Kanishka stupa at Peshawar was considered one of the tallest structures of its time and became a center of Buddhist learning and pilgrimage.

Coins from the Kushana period also reflect artistic excellence. They were often made of gold and featured detailed portraits of the kings on one side and Hindu, Buddhist, or Zoroastrian symbols on the other. These coins show the blend of religious and cultural influences during the Kushana rule.

Development of Literature

Literature during this period reflected both religious and secular themes, with a notable rise in Sanskrit and Prakrit compositions. Sanskrit became the language of high culture and scholarly expression, while Prakrit continued to be used for popular and dramatic literature. One of the most important literary developments was the flourishing of Buddhist literature, particularly the Gandhari and Sanskrit texts, including Jataka tales and early Mahayana sutras, which were often inscribed on manuscripts or transmitted orally. Additionally, the period saw the compilation of important grammatical and poetic works, with authors like Patanjali influencing linguistic studies. The Kushana era also witnessed an expansion of epigraphic literature, as inscriptions on coins, pillars, and monuments often combined historical record with poetic or laudatory expression, blending political authority with literary sophistication.

Development of Science

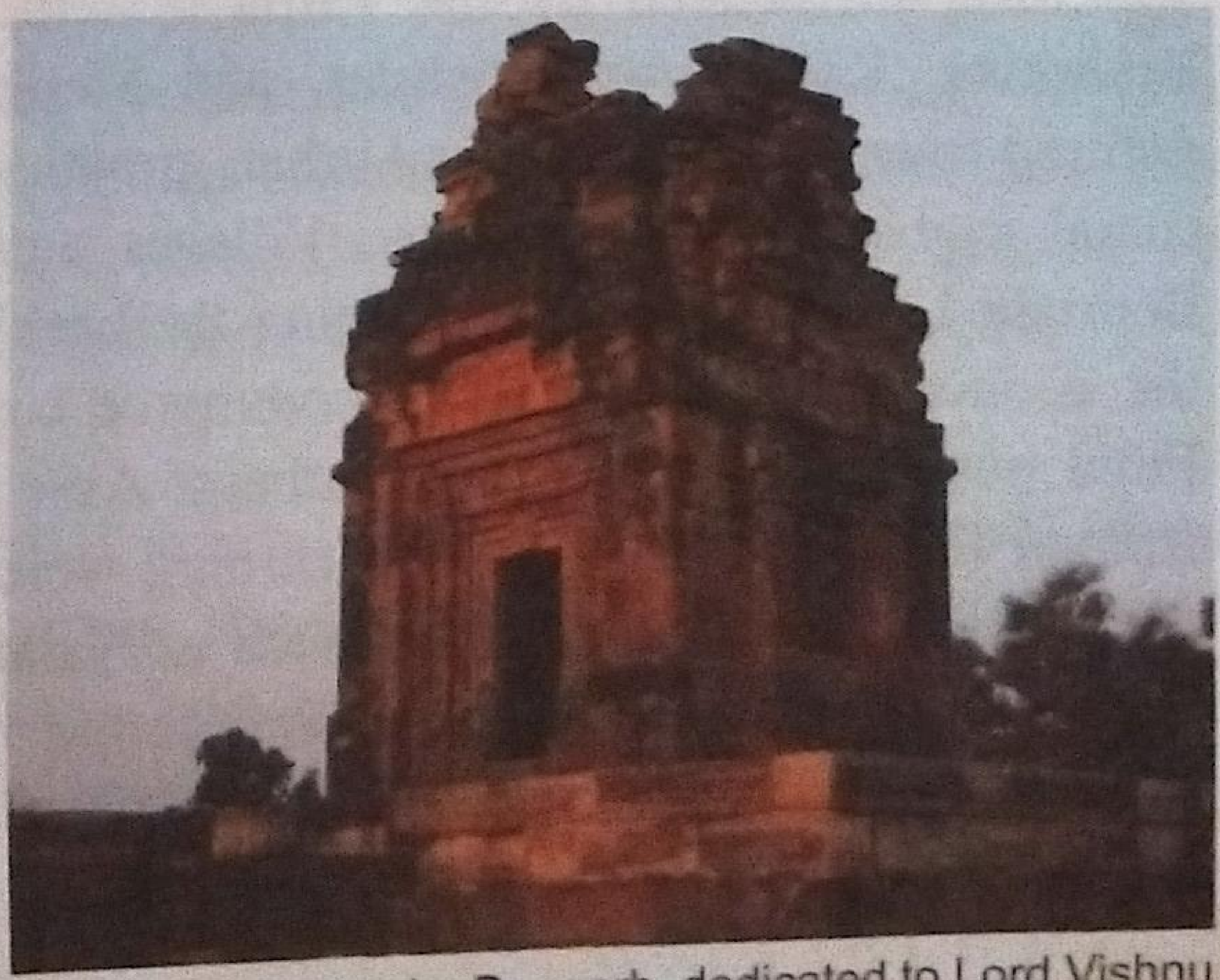
The Kushanas ruled over a vast and diverse region, which facilitated the exchange of ideas between India, Central Asia, and the Hellenistic world, leading to remarkable progress in various scientific fields. Astronomy and mathematics flourished during this time, with scholars using advanced techniques for calculating planetary movements and devising accurate calendars, often linked to religious and ritual practices. Medicine also saw notable advancements, drawing from Ayurvedic traditions and integrating knowledge from Greek and Central Asian sources, leading to better understanding of anatomy, treatment methods, and medicinal plants. Metallurgy and architecture benefited from Kushana innovations, as evidenced by the construction of stupas, temples, and elaborate urban centers using durable materials and precise engineering techniques. Trade and coinage stimulated economic and technological developments, with standardised coinage reflecting sophisticated metallurgical knowledge. Overall, the Kushana period represents a formative era in the history of Indian science, where cross-cultural interactions and state patronage contributed to progress in astronomy, medicine, engineering, and mathematics, setting the stage for further advancements during the Gupta period.

The Gupta Period

The Gupta period is often called the “Golden Age of India” because it was a time of great political stability, economic prosperity, and cultural achievement. The Gupta rulers, starting with Chandragupta I, established a strong central administration and promoted art, literature, science, and religion. Hinduism became prominent, although Buddhism and Jainism continued to thrive. The period was marked by flourishing trade, agricultural growth, and urban development, which supported artistic and cultural activities across the empire. Scholars like Kalidasa in literature, Aryabhata in mathematics and astronomy, and physicians in medicine contributed to India’s rich intellectual heritage during this time.

Art and Architecture

Art and architecture during the Gupta period reached new heights and are considered classical examples of Indian creativity. Temple architecture evolved with well-planned layouts, detailed carvings, and harmonious proportions. The Gupta temples, like those at Deogarh and Sanchi, were built in stone and featured beautifully sculpted panels depicting gods, goddesses, and mythological scenes. Sculpture flourished with a focus on idealised human forms, gentle expressions, and intricate jewellry and clothing details, especially in statues of Buddha, Shiva, and Vishnu. The period also saw the development of Buddhist cave architecture, as seen in the Ajanta caves, with elaborate frescoes, murals, and reliefs illustrating stories from the Jataka tales and the life of Buddha. Coins and inscriptions from this era displayed fine artistry and served both as currency and as a medium to glorify kings. The Gupta period left a lasting legacy in art and architecture, influencing Indian styles for centuries and establishing aesthetic principles that are still admired today.

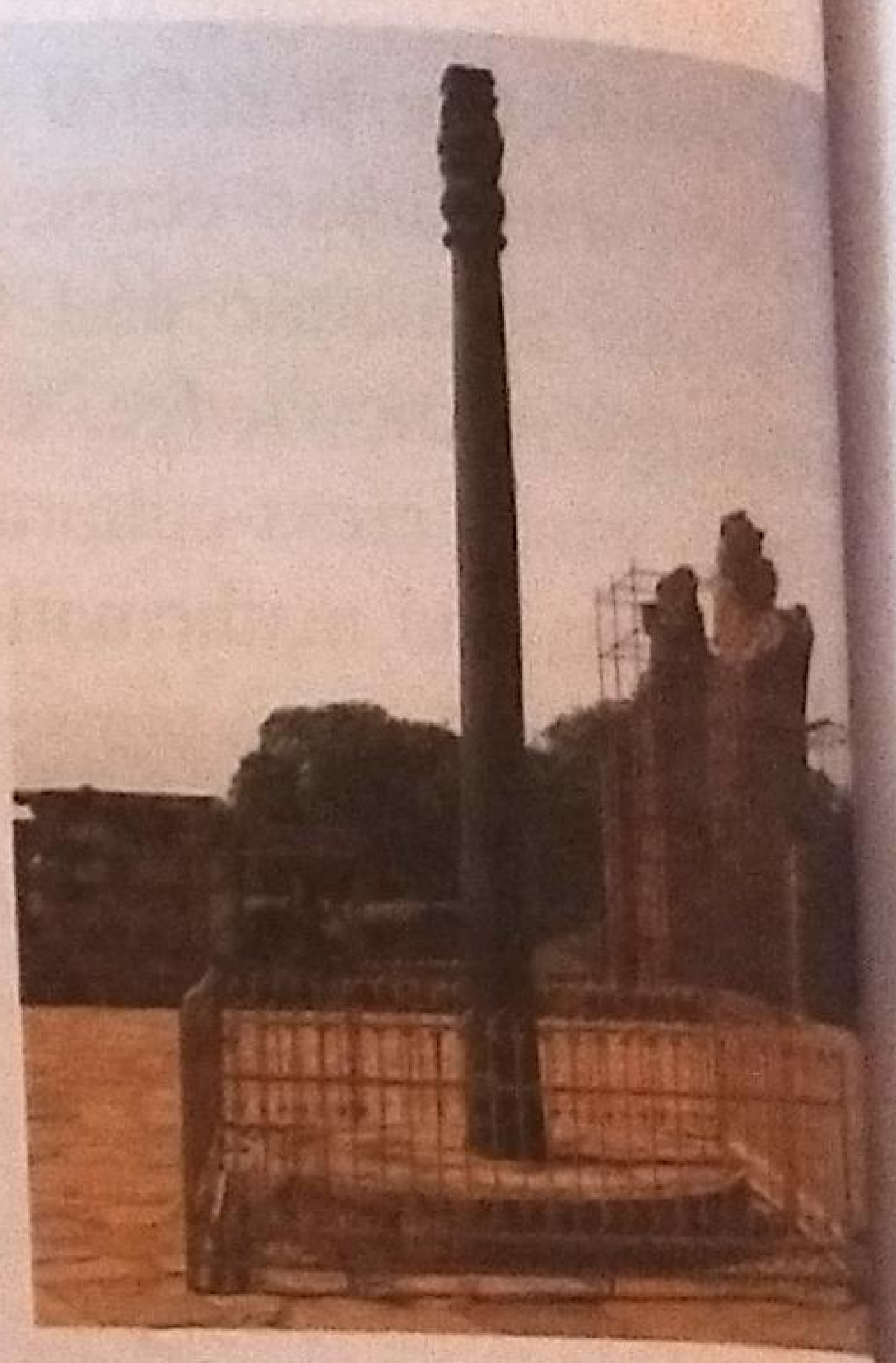


Dashavatara temple, Deogarh, dedicated to Lord Vishnu

Development of Literature

During this time, Sanskrit became the dominant language of learning, art, and culture, and many great literary works were composed that are still admired today. The period saw the rise of classical Sanskrit literature, including poetry, plays, and prose, often supported by the royal patronage of Gupta rulers. One of the most famous writers of this era was Kalidasa, whose plays like *Abhijnanasakuntalam* and poems like *Meghaduta* combined elegance, emotion, and philosophical depth. Besides poetry and drama, religious and philosophical texts flourished, including commentaries on the Vedas, Puranas, and works on law, ethics, and grammar, which helped preserve and systematise knowledge. Literature during the Gupta period was not limited to Sanskrit; regional languages and Prakrits were also used, especially in popular stories, folk tales and Buddhist literature. This era represents a high point in Indian literary history, where creativity, intellectual sophistication, and aesthetic beauty came together, leaving a lasting influence on later generations of writers and scholars.

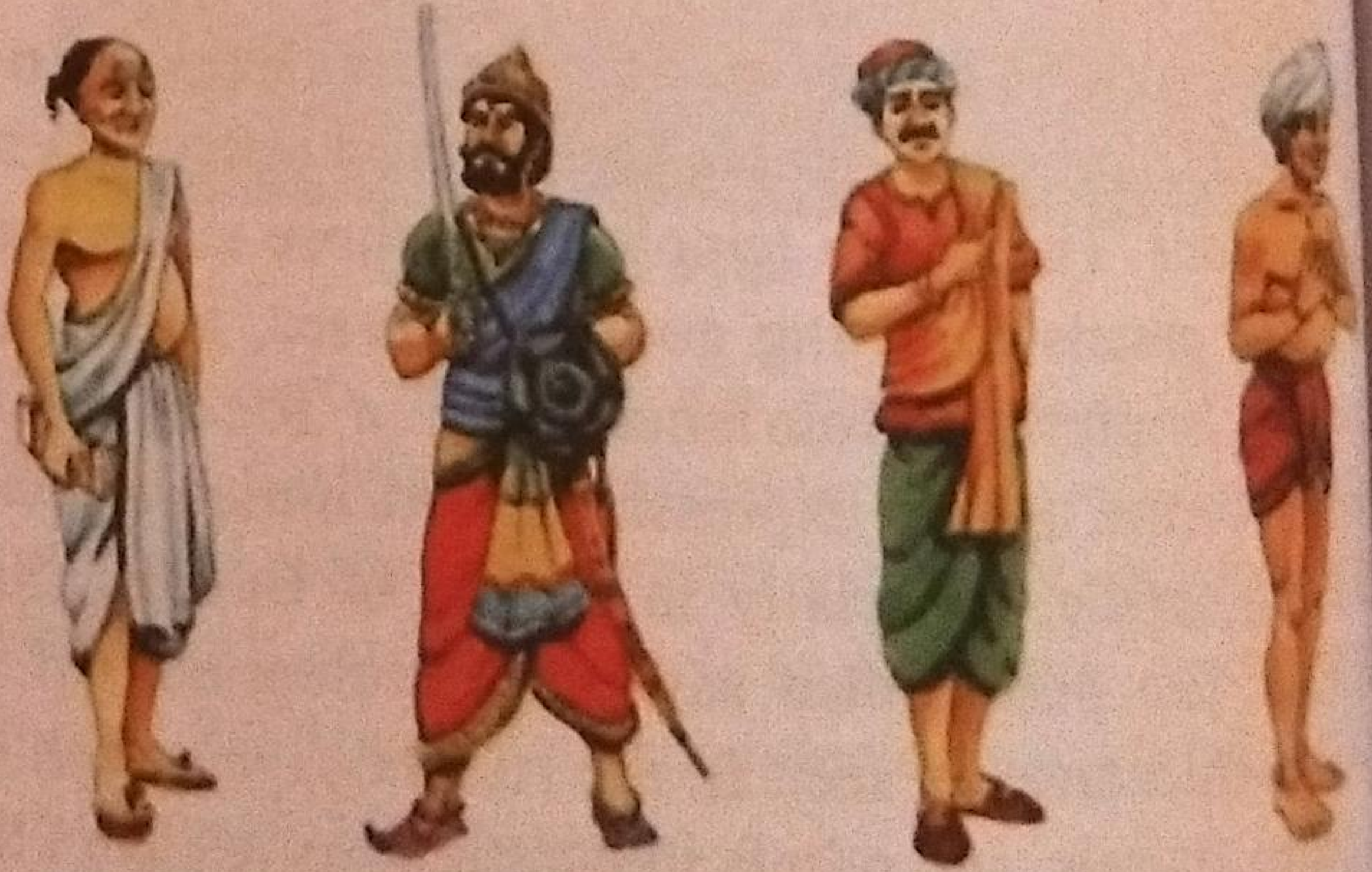
Development in Science and Technology



Iron Pillar, Delhi

The Gupta period witnessed remarkable progress in science and technology alongside art and literature. During this time, scholars made significant advances in mathematics, astronomy, medicine, and metallurgy. In mathematics, the concept of zero as a number and the decimal system were developed, and great mathematicians like Aryabhata calculated the value of pi and described the motion of planets. Astronomy also flourished, with detailed observations of stars, eclipses, and planetary movements that were linked to calendars and rituals. In medicine, Ayurvedic texts were refined, and physicians studied anatomy, surgery, and herbal treatments. Gupta engineers and artisans made remarkable progress in metallurgy, creating strong iron pillars, like the famous Iron Pillar of Delhi, which has resisted rust for centuries. Architecture and construction techniques also improved, with well-planned temples, stupas, and cave complexes showcasing precise engineering. Trade and urban development encouraged technological innovations, including water management, coin minting, and pottery.

Society and Culture



Brahmin Kshatriya Vaishya Shudra

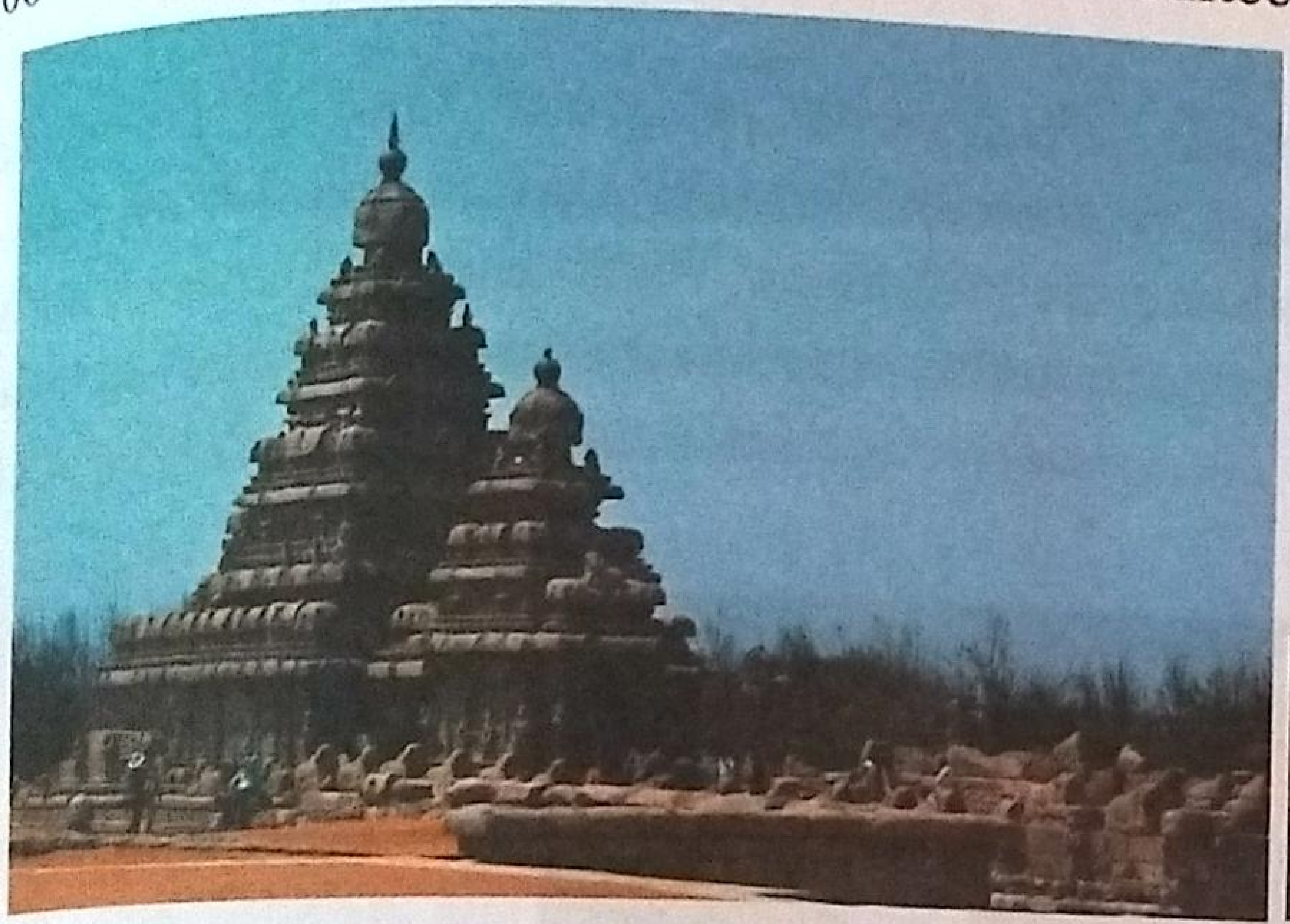
The Gupta period is often called for the remarkable development of society and culture. During this time, society was organised with a clear social structure, influenced by the varna system, where Brahmins, Kshatriyas, Vaishyas, and Shudras had defined roles, though trade and urban growth allowed social mobility in some areas. Villages and towns flourished, with agriculture forming the backbone of the economy, while trade and commerce connected India with regions as far as Southeast Asia and the Roman Empire. Education and learning were highly valued, and centers of learning, such as Nalanda and Takshashila, attracted students from across the world. Religion played a central role in cultural life, with Hinduism gaining prominence alongside Buddhism and Jainism. Festivals, rituals, and temple activities were important for both social and religious life. Art, music, and dance thrived, often linked to temples and royal courts, and literature in Sanskrit and regional languages reflected the values and ideals of the society.

Art and Architecture during the Post-Gupta Period (up to 1000 CE)

The period after the decline of the Gupta Empire, from about the 6th century to 1000 CE, is known as the Post-Gupta period. During this time, many regional kingdoms such as the Pallava dynasty, Chalukya dynasty, Rashtrakuta dynasty, Pala dynasty, Pratihara dynasty and Chola dynasty came to power in different parts of India. These rulers encouraged art, architecture, sculpture, and painting. As a result, Indian art developed regional styles, especially in temple construction.

One of the most important features of this period was the growth of temple architecture. By this time, temple building had become highly developed. In North India, the Nagara style became popular. Temples built in this style had tall, curved towers called shikharas. The temples at Khajuraho Group of Monuments are fine examples of this style. Although many of these temples were built slightly after 1000 CE, the basic features of the Nagara style had already developed earlier under rulers like the Pratiharas.

In South India, the Dravida style of architecture flourished, especially under the Pallava dynasty and the early Chola dynasty rulers. Temples of this style had pyramid-shaped towers called vimanas and were surrounded by large courtyards. The Shore Temple at Mahabalipuram, built by the Pallavas in the 8th century, is an important example. The Brihadeeswarar Temple at Thanjavur, built by the Chola ruler Rajaraja I around 1000 CE, marks the height of early Chola architecture.



Shore Temple, Mahabalipuram

Brihadishvara Temple, Tanjore

In the Deccan region, a mixed style known as Vesara developed. It combined features of both the Nagara and Dravida styles. The Chalukya dynasty rulers built beautiful temples at Aihole, Badami, and Pattadakal. The Virupaksha Temple is a fine example of this style. The Rashtrakuta dynasty rulers also contributed greatly by building the famous Kailasa temple at Ellora Caves. This temple was carved out of a single rock and shows advanced engineering and artistic skills.

Sculpture also flourished during this period. Temples were decorated with beautiful carvings of gods, goddesses, animals, dancers, and scenes from mythology. The figures became more detailed and decorative compared to the Gupta period. In eastern India, under the Pala dynasty, Buddhist art developed greatly. The Palas made fine bronze statues of Buddha and Bodhisattvas, which were also sent to Southeast Asia.

Literature

The Post-Gupta period, from about the 6th century to 1000 CE, was an important age for the development of Indian literature. After the decline of the Gupta Empire, many regional kingdoms such as the Pallava dynasty, Chalukya dynasty, Rashtrakuta dynasty, Pala dynasty, and Chola dynasty ruled different parts of India. These rulers supported scholars, poets, and writers. As a result, literature flourished in Sanskrit as well as in regional languages during this period.

Sanskrit continued to be the main language of learning and literature. Many important works on poetry, drama, grammar, and philosophy were written. The famous writer Banabhatta wrote *Harshacharita*, which gives information about the life of King Harsha, and *Kadambari*, a well-known prose romance. Another great scholar, Dandin, wrote *Dashakumaracharita*, a popular story collection, and also contributed to literary criticism. These works show the richness and beauty of Sanskrit prose and poetry.

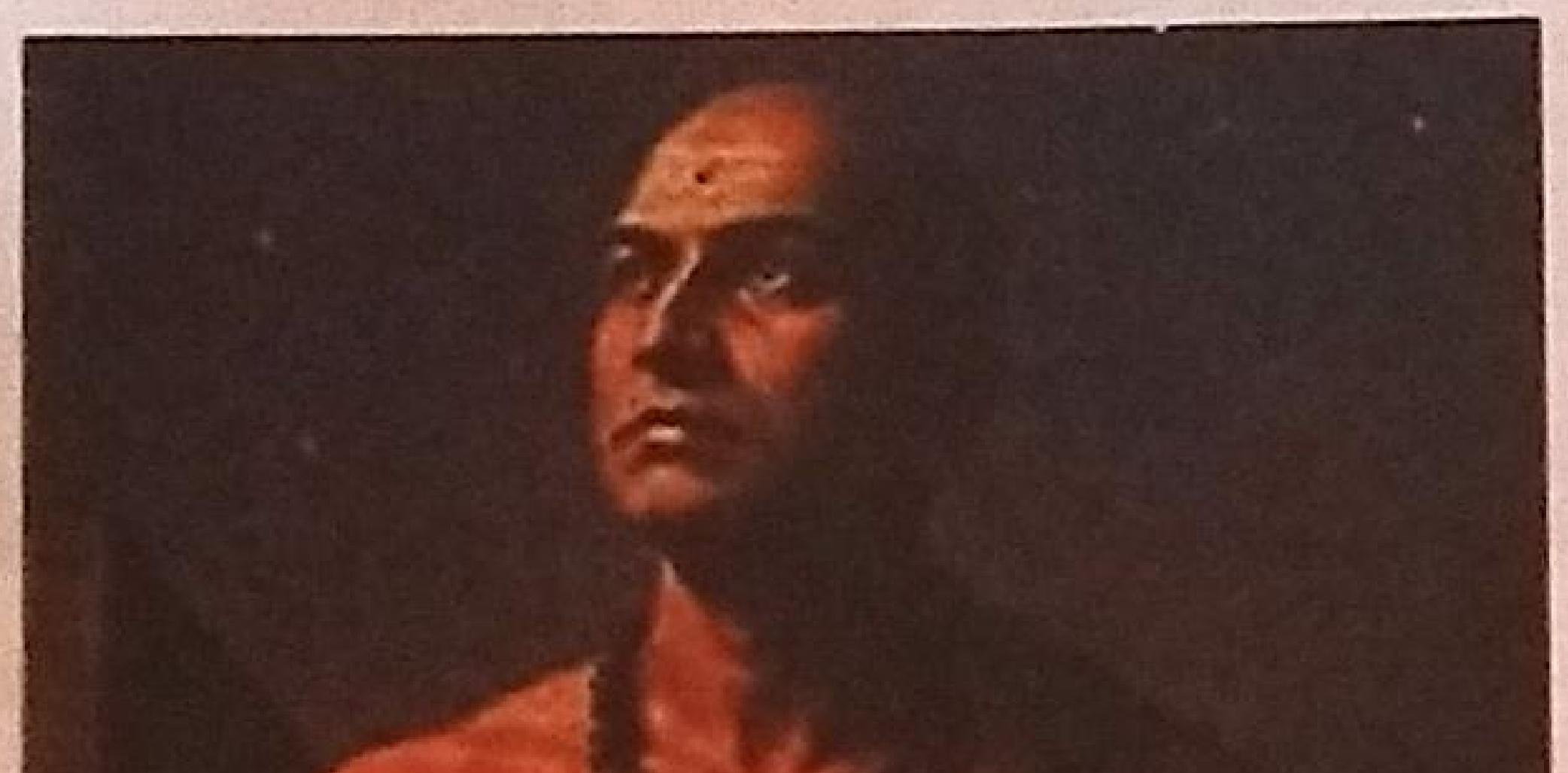
This period also saw the writing of important religious and philosophical texts. Hindu scholars wrote commentaries on the Vedas, Upanishads, and Puranas. The great philosopher Adi Shankaracharya wrote commentaries on the Upanishads and spread the philosophy of *Advaita Vedanta*. In Buddhism, scholars under the Pala dynasty composed many texts related to Mahayana Buddhism. Jain scholars also produced important religious works in Sanskrit and Prakrit.

Along with Sanskrit, regional languages began to grow during this time. In South India, Tamil literature developed greatly under the Pallava dynasty and early Chola dynasty rulers. The devotional movement known as the Bhakti movement began to spread. The poet-saints called the Alvars and Nayanars composed devotional hymns in Tamil in praise of Vishnu and Shiva. These hymns were simple and full of devotion, making religion more accessible to common people.

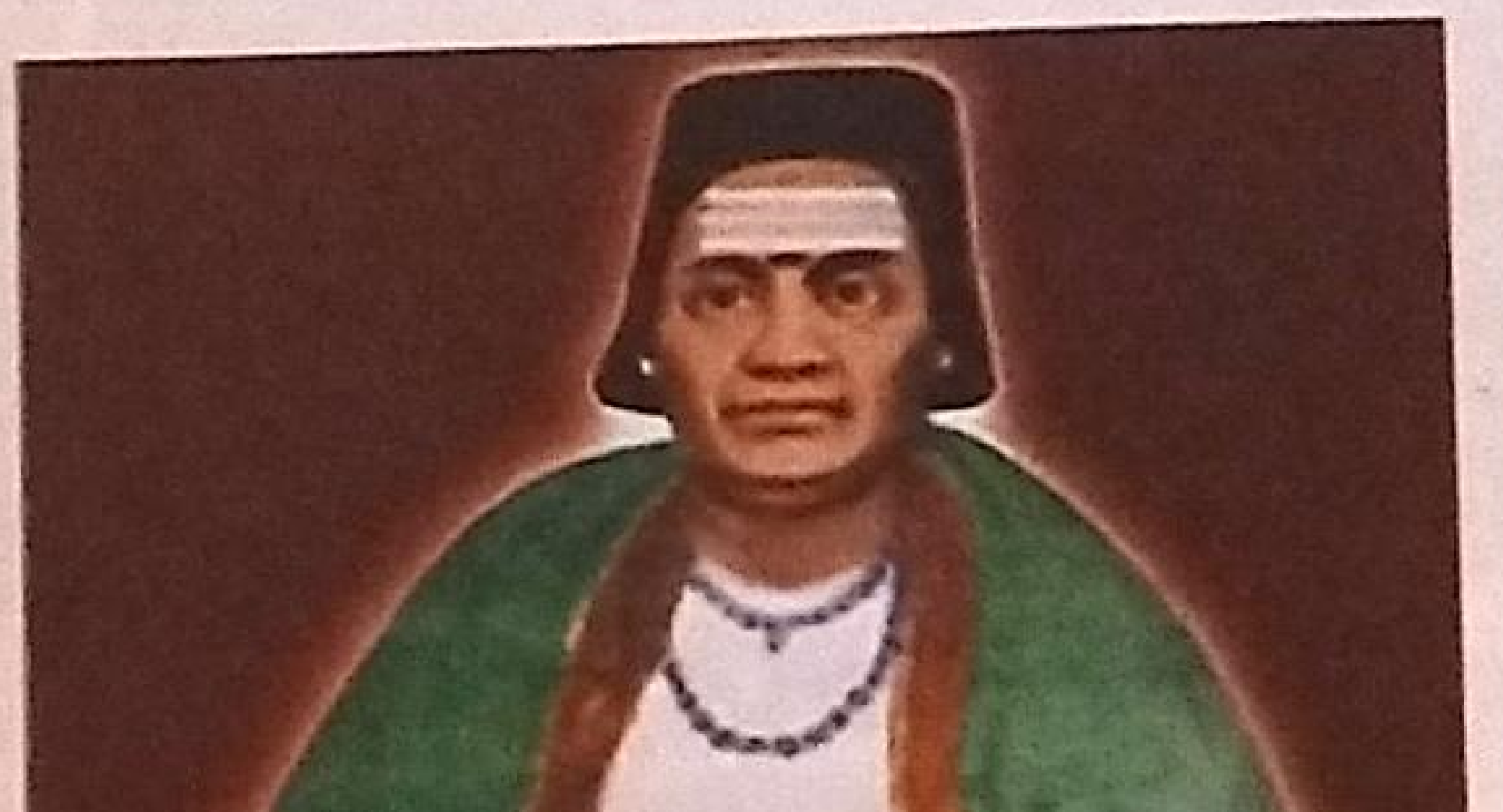
In Karnataka, Kannada literature began to develop under the Rashtrakuta dynasty. One of the earliest Kannada works, *Kavirajamarga*, was written during this time and is considered an important text in Kannada literary history. In eastern India, early forms of Bengali and other regional languages also started taking shape.

Development in Science

In mathematics and astronomy, Indian scholars made remarkable progress. One of the greatest mathematicians of this period was Brahmagupta. In his book *Brahmasphutasiddhanta*, he explained rules for solving equations and worked with the concept of zero and negative numbers. Another important scholar was Bhaskara I, who wrote commentaries on earlier works and contributed to astronomy. Indian scholars calculated the movement of planets and prepared accurate calendars. Their knowledge later influenced Arab scholars and spread to other parts of the world.



Brahmagupta



Bhaskara I

Medicine also developed during the Post-Gupta period. The earlier medical traditions of Ayurveda continued to be studied and practised. Scholars wrote commentaries on famous medical texts like the *Charaka Samhita* and *Sushruta Samhita*. Doctors had knowledge of surgery, medicines made from herbs, and methods of treating different diseases. Hospitals and centers of medical learning were attached to monasteries and temples in some regions.

In the field of metallurgy, Indians showed great skill in working with metals. They were able to produce high-quality steel and iron. The knowledge of making strong iron tools and weapons was well developed. Indian steel, especially wootz steel, was famous and exported to other countries. This shows the advanced level of technical knowledge during this time.

Scientific knowledge was closely connected with religion and daily life. Astronomy was important for preparing calendars and fixing dates of festivals. Mathematics was used in trade, construction, and temple architecture. Education in science was given in Sanskrit and also gradually in regional languages.

Society and Culture

Society during this period was mainly based on the varna system. The four main varnas—Brahmins, Kshatriyas, Vaishyas, and Shudras—continued to exist, but over time many new sub-castes (jatis) developed. The position of Brahmins became very important because rulers often gave them land grants. These grants helped in spreading education, religion, and agriculture in rural areas. The feudal system also developed during this time, as kings granted land to officials and warriors in return for services. This led to the rise of local landlords who became powerful in villages.

The condition of women during the Post-Gupta period showed both progress and decline. Women from royal and wealthy families sometimes received education and took part in religious activities. However, practices such as child marriage became more common, and the position of women in society gradually declined compared to earlier times. Still, women participated in cultural and religious life, especially in devotional movements.

Religion played a very important role in shaping society and culture. Hinduism became more organised with the growth of temple worship and the popularity of the Puranas. The Bhakti movement began to spread in South India through the devotional songs of the Alvars and Nayanars. This movement emphasised personal devotion to God and equality of all devotees. Buddhism continued to flourish in eastern India under the Pala dynasty, while Jainism remained popular in parts of western and southern India under the Rashtrakuta dynasty. Thus, religious tolerance and interaction were important features of this period.

Art, music, dance, and festivals were important parts of cultural life. Temples became centers of social and cultural activities. People celebrated religious festivals with great enthusiasm. Trade and contact with Southeast Asia helped in spreading Indian culture abroad. Indian ideas, religion, art, and architecture influenced countries like Cambodia and Indonesia during this time.

Engage and Reflect

1. One of the most famous contributions of Mauryan architecture is the
   (a) Konark Temple (b) Ashokan Pillars (c) Nalanda University (d) Meenakshi Temple
2. The Gandhara and Mathura School of Art was developed during the period of ____________
3. Scholars like Kalidasa and Aryabhata were associated with ____________
4. The caves at ____________ and ____________ show beautiful wall paintings and sculptures based on Hindu, Buddhist and Jain themes.
5. Mention the development in art and architecture during the post-Gupta period.

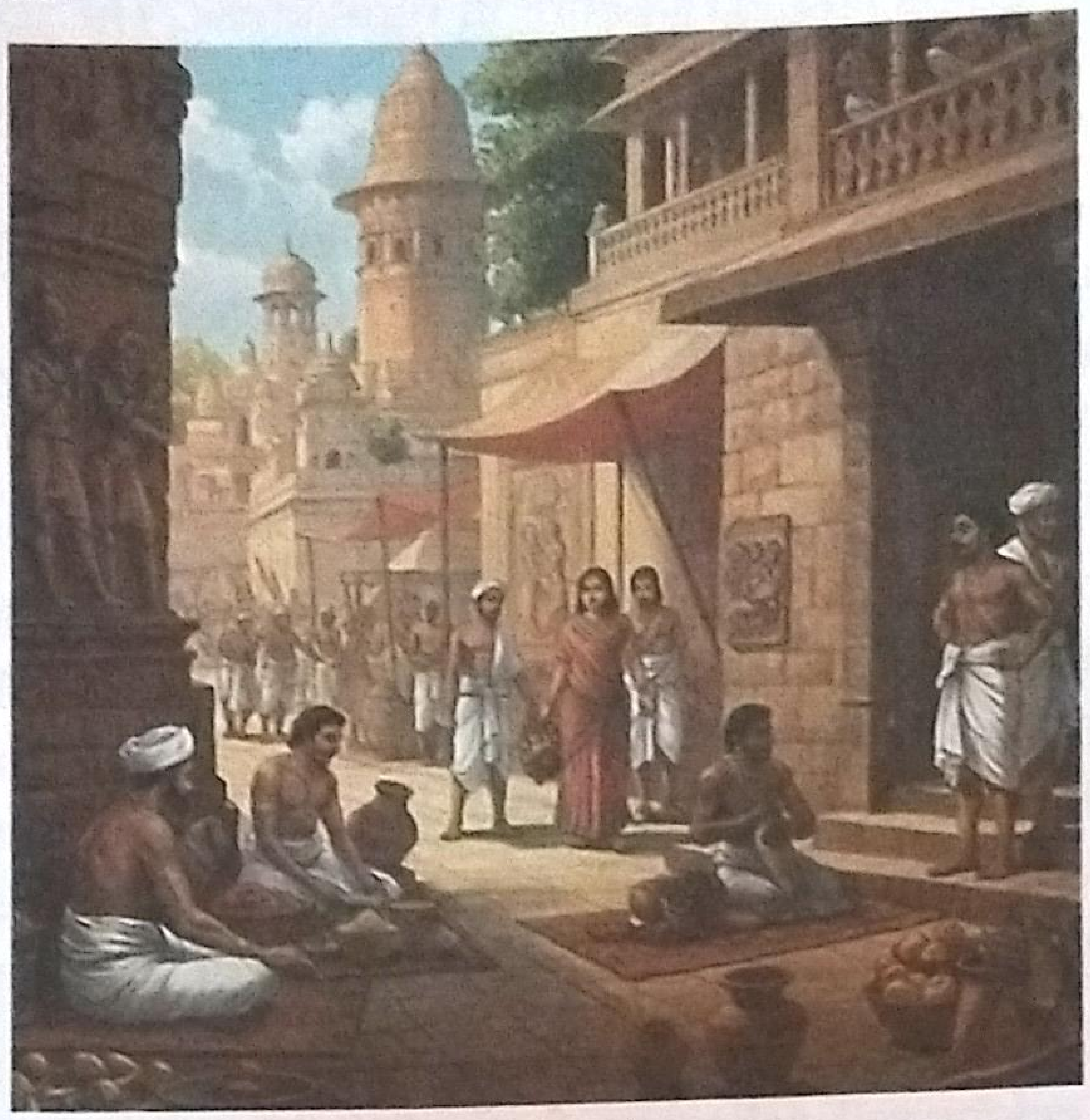
KEY LEARNINGS

- The Mauryan rulers, especially Ashoka, encouraged building projects that reflected the grandeur of the empire and promoted religious and moral values.
- The Kushana period is famous for its Buddhist art, especially the development of the Gandhara and Mathura schools of art. The Gandhara school (in present-day Pakistan and Afghanistan) combined Indian themes with Greco-Roman artistic styles.
- Gupta engineers and artisans made remarkable progress in metallurgy, creating strong iron pillars, like the famous Iron Pillar of Delhi, which has resisted rust for centuries.
- The period after the decline of the Gupta Empire, from about the 6th century to 1000 CE, is known as the Post-Gupta period. During this time, many regional kingdoms such as the Pallava dynasty, Chalukya dynasty, Rashtrakuta dynasty, Pala dynasty, Pratihara dynasty and Chola dynasty came to power in different parts of India.

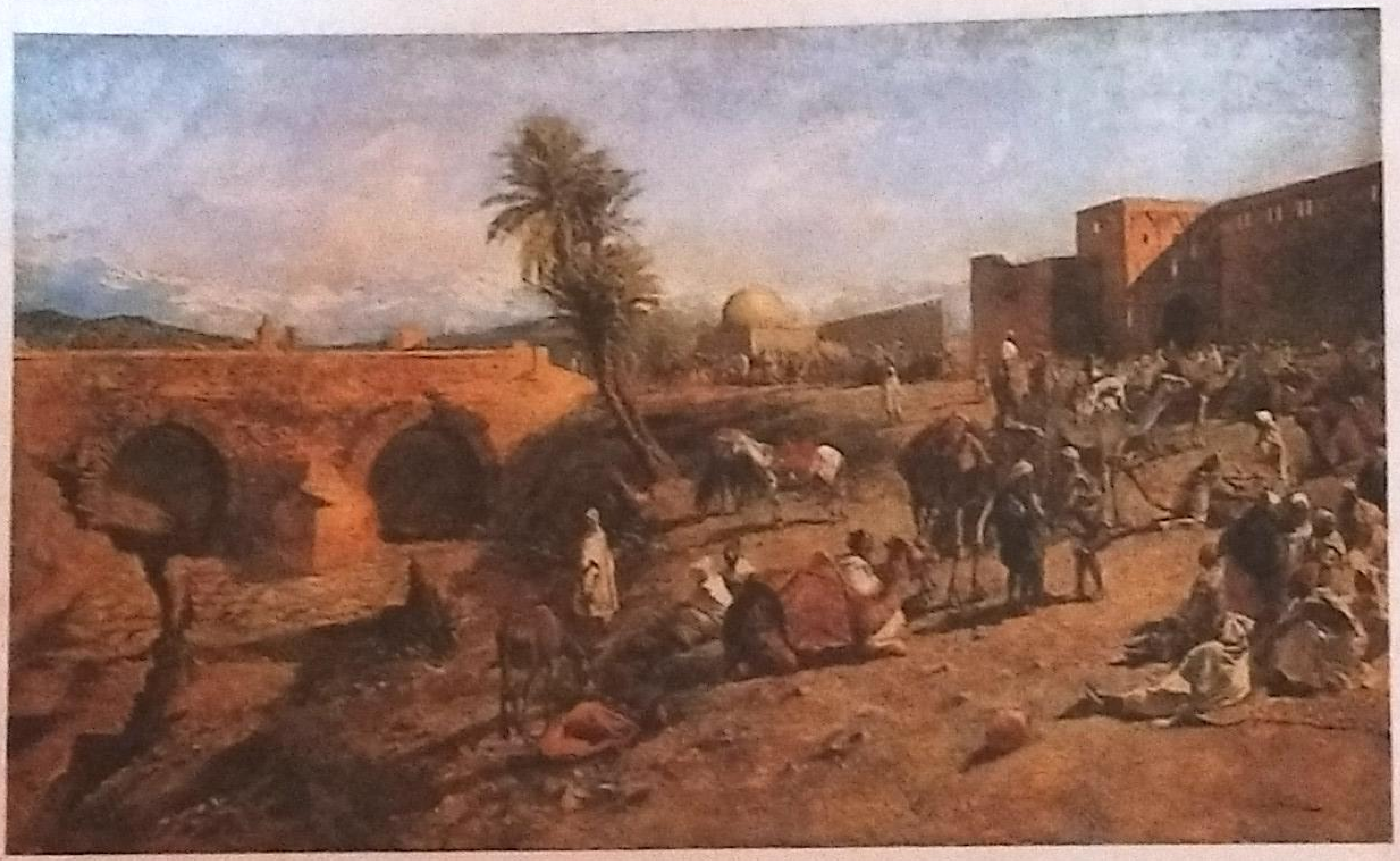
TRADERS AND TRADE ROUTES, GUILDS AND MERCHANTS, CRAFTS AND INDUSTRIES

Trade, Traders, Guilds and Industries during the Mauryan Period

This period saw the development of organized trade networks, powerful guilds, flourishing crafts, and expanding internal and foreign trade.



Trade Network



Traders and Merchants in Local Market

Traders and merchants played an important role in the economy. They bought and sold goods within the empire and also traded with foreign lands. Traders travelled from villages to towns and from one region to another carrying agricultural products, textiles, metals, spices, and precious stones. Big merchants were known as setthis (wealthy bankers and traders). They often lent money and financed trade activities.

Caravans of traders moved together for safety. They used bullock carts and pack animals like horses and camels to transport goods. Markets were regularly organised in cities and towns where traders sold their products. The government supervised trade to ensure fair prices and prevent cheating. Officials checked weights and measures to maintain honesty in business.

Trade routes during the Mauryan period were well-developed and connected different parts of the empire. The most important land route was the Uttarapatha, which connected northwestern India to the eastern regions. Another major route was the Dakshinapatha, linking northern India to the southern parts.

Guilds (Shrenis)

Guilds, known as shrenis, were associations of traders and craftsmen. These guilds played a very important role in regulating trade and crafts. Each guild had its own rules and regulations. Members of the same profession, such as weavers, potters, metal workers, or carpenters, formed a guild.

Guilds fixed the quality, prices, and working conditions of their products. They also protected the interests of their members and provided help during times of need. Some guilds became very rich and powerful. They even acted like banks by giving loans and accepting deposits. Guilds had their own leaders who settled disputes among members.

The Mauryan government recognised these guilds and sometimes consulted them in economic matters. This shows that guilds were respected and influential during this period.

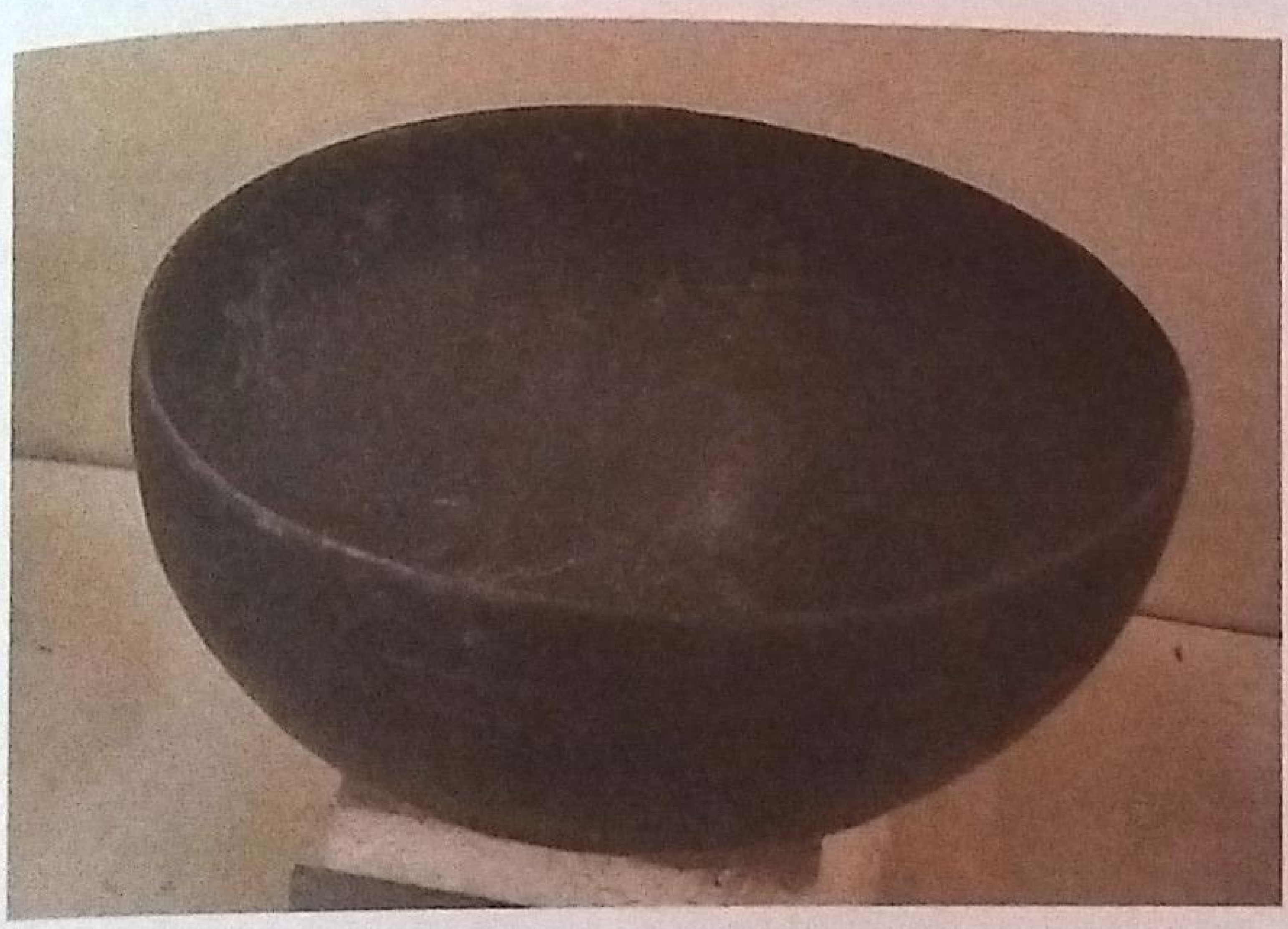
Crafts and Industries

The Mauryan period witnessed great progress in crafts and industries. Textile production was one of the most important industries. Cotton and silk fabrics were produced in large quantities and were famous for their fine quality. Weaving centers developed in many towns.

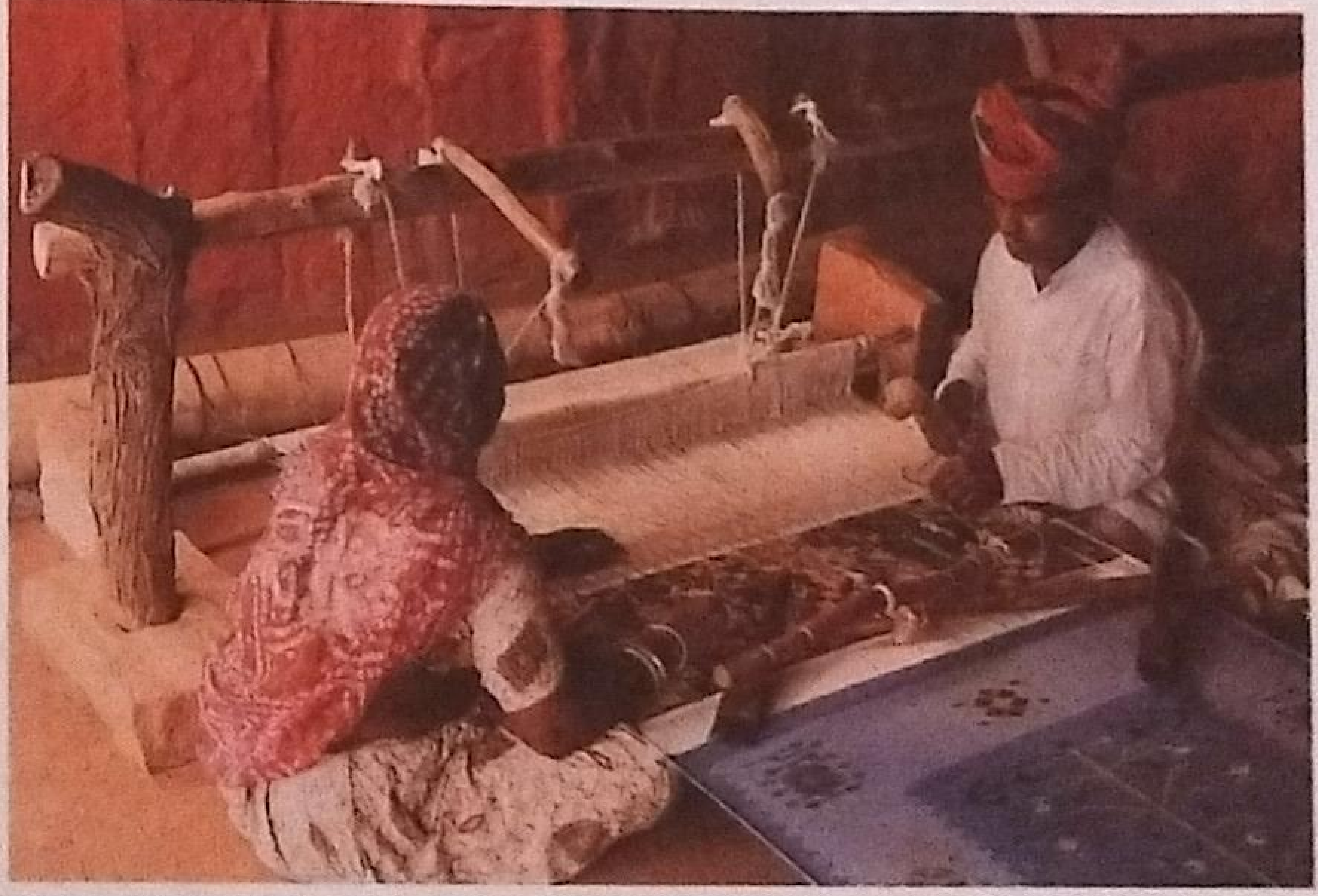
Metalwork was another important industry. Iron tools and weapons were widely used. The production of copper, gold, and silver items also flourished. The famous polished stone pillars of Ashoka show the high level of skill achieved by Mauryan craftsmen.

Pottery, carpentry, ivory work, and jewellry making were other important crafts. Artisans produced beautiful ornaments, household items, and statues. Mining was also organized under state control, and minerals were carefully extracted and used.

The government played an active role in controlling industries. According to ancient texts like the Arthashastra by Kautilya, the state supervised mines, forests, trade, and taxation. Officials were appointed to oversee different economic activities to ensure smooth functioning.



Metal Bowl



Household commodity production–A handloom

Trade, Traders, and Industries during the Kushana Period

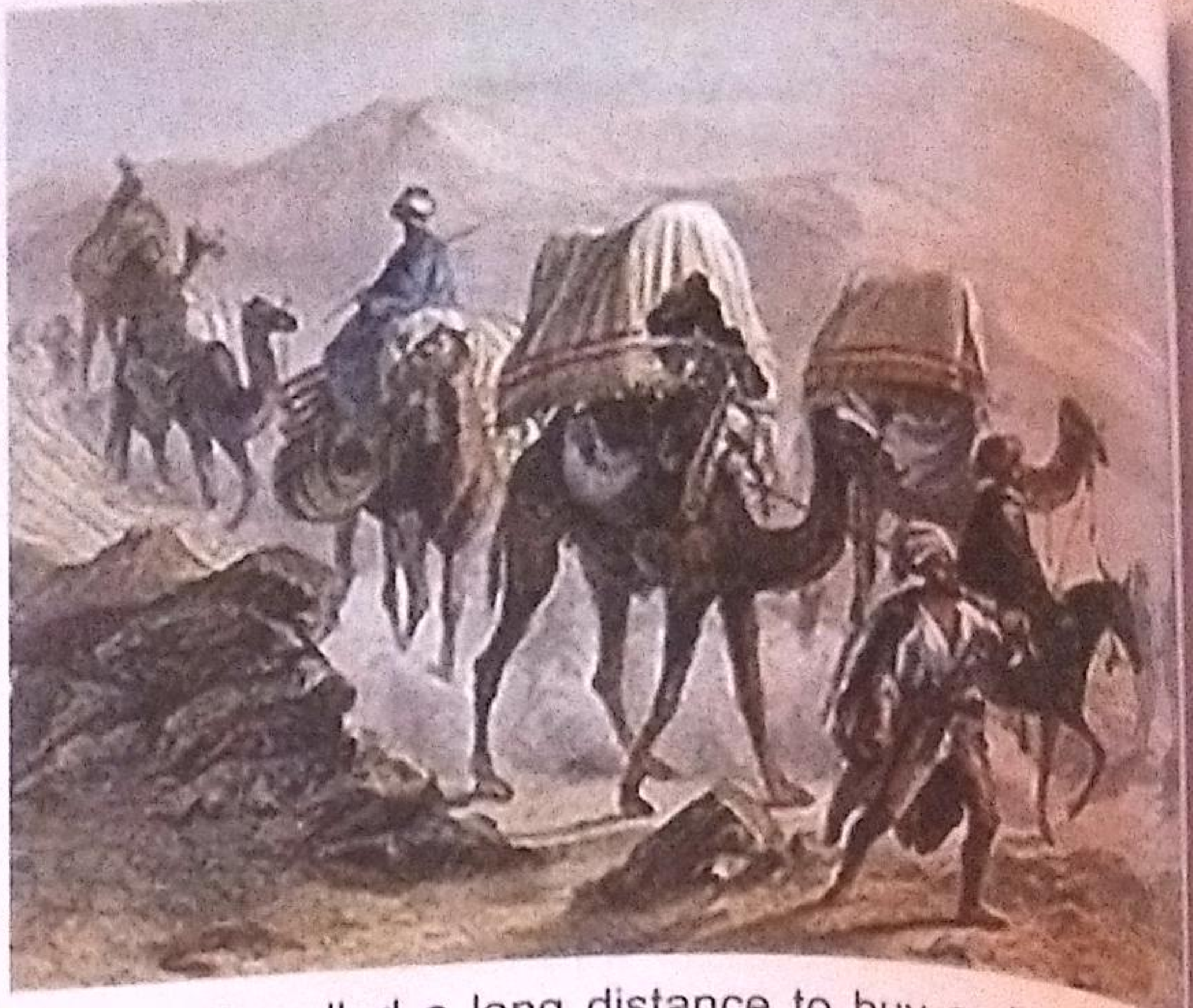
The Kushanas were originally from Central Asia and established a vast empire in northwestern India. The greatest ruler of this dynasty was Kanishka. Under his rule, the empire expanded and became a center of trade, culture, and economic prosperity. The Kushana period is especially known for its flourishing long-distance trade and development of crafts and industries.

Traders and Merchants

During the Kushana period, traders and merchants played a very important role in the economy. The Kushana Empire was located at the crossroads of major trade routes connecting India with Central Asia, China, and the Roman Empire. Because of this strategic location, merchants carried goods across long distances and earned great wealth.

Indian traders exported spices, silk, cotton textiles, precious stones, ivory, and handicrafts. In return, they imported gold, silver, horses, wine, and luxury goods from the Roman Empire and Central Asia. Many Roman gold coins have been found in India, showing the strong trade relations between India and Rome.

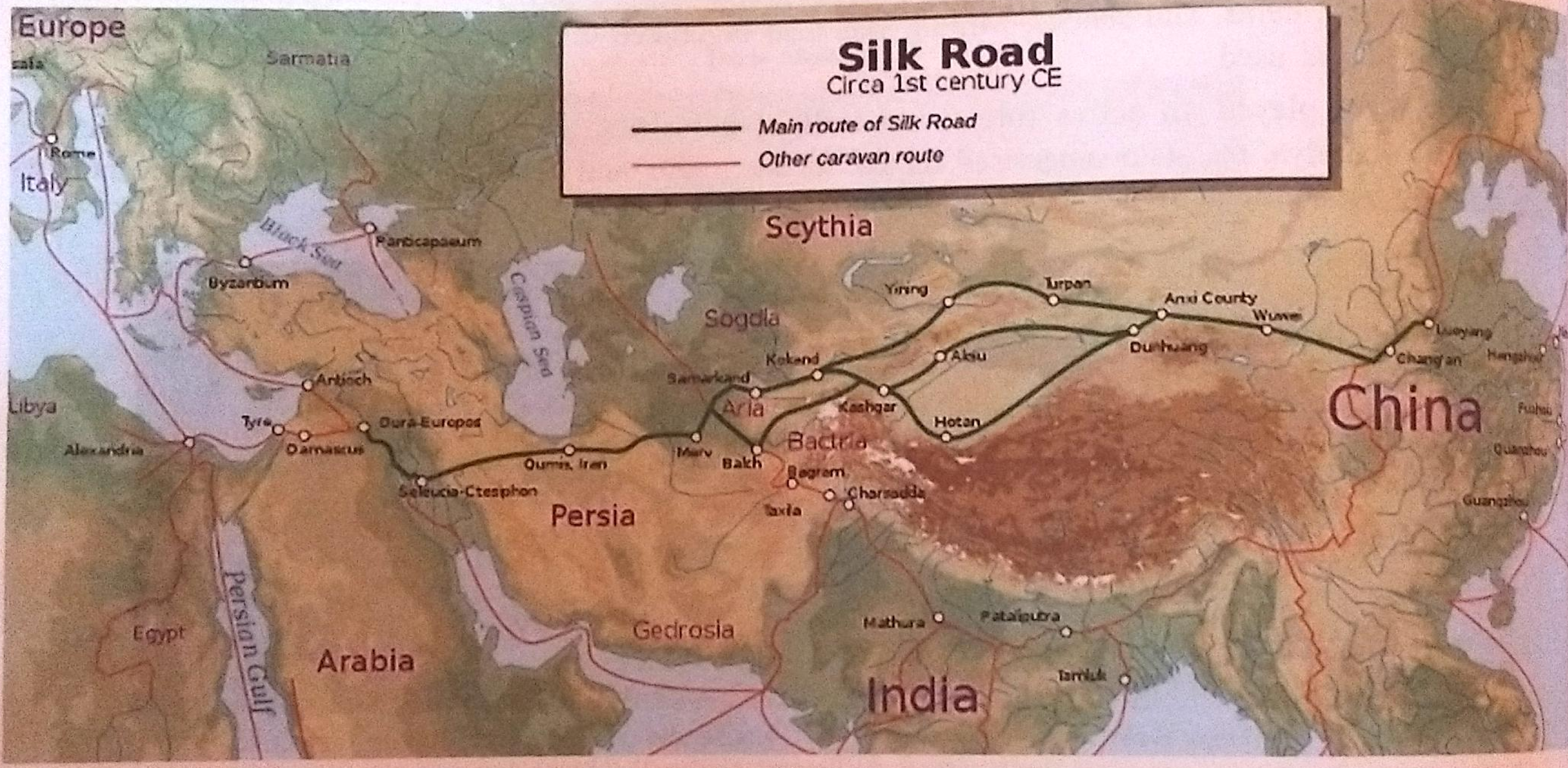
Caravans of merchants travelled together for safety, especially across deserts and mountains. Big merchants were wealthy and sometimes donated money to build religious monuments such as stupas and monasteries. Trade made many cities rich and prosperous during this period.



Traders Travelled a long distance to buy and sell goods

Trade Routes

Trade routes during the Kushana period were highly developed. The most famous route was the Silk Road, which connected China to the Mediterranean region through Central Asia and India. The Kushanas controlled a large part of this route, which helped them benefit from international trade.


Silk Road
Circa 1st century CE
Main route of Silk Road
Other caravan route
Europe
Sarmatia
Rome
Italy
Black Sea
Panticapaeum
Byzantium
Caspian Sea
Scythia
Sogdia
Yining
Turpan
Anxi County
Wuwei
Dunhuang
Luoyang
Chang'an
Hangzhou
Kokand
Aksu
Samarkand
Aria
Kashgar
Hotan
China
Fuzhou
Quanzhou
Guangzhou
Libya
Antioch
Tyre
Damascus
Dura-Europos
Alexandria
Merv
Balkh
Bactria
Qumis, Iran
Seleucia-Ctesiphon
Bagram
Charsadda
Taxila
Persia
Egypt
Persian Gulf
Arabia
Gedrosia
Mathura
Pataliputra
Tamluk
India

Silk Route

Important land routes connected cities like Peshawar (an important Kushana centre) and Mathura. These cities became major centres of trade and culture.

Sea routes were also important. Indian ports such as Bharuch and Arikamedu were busy centers of overseas trade. Ships carried goods across the Arabian Sea to the Roman Empire. The use of monsoon winds made sea travel faster and more reliable.

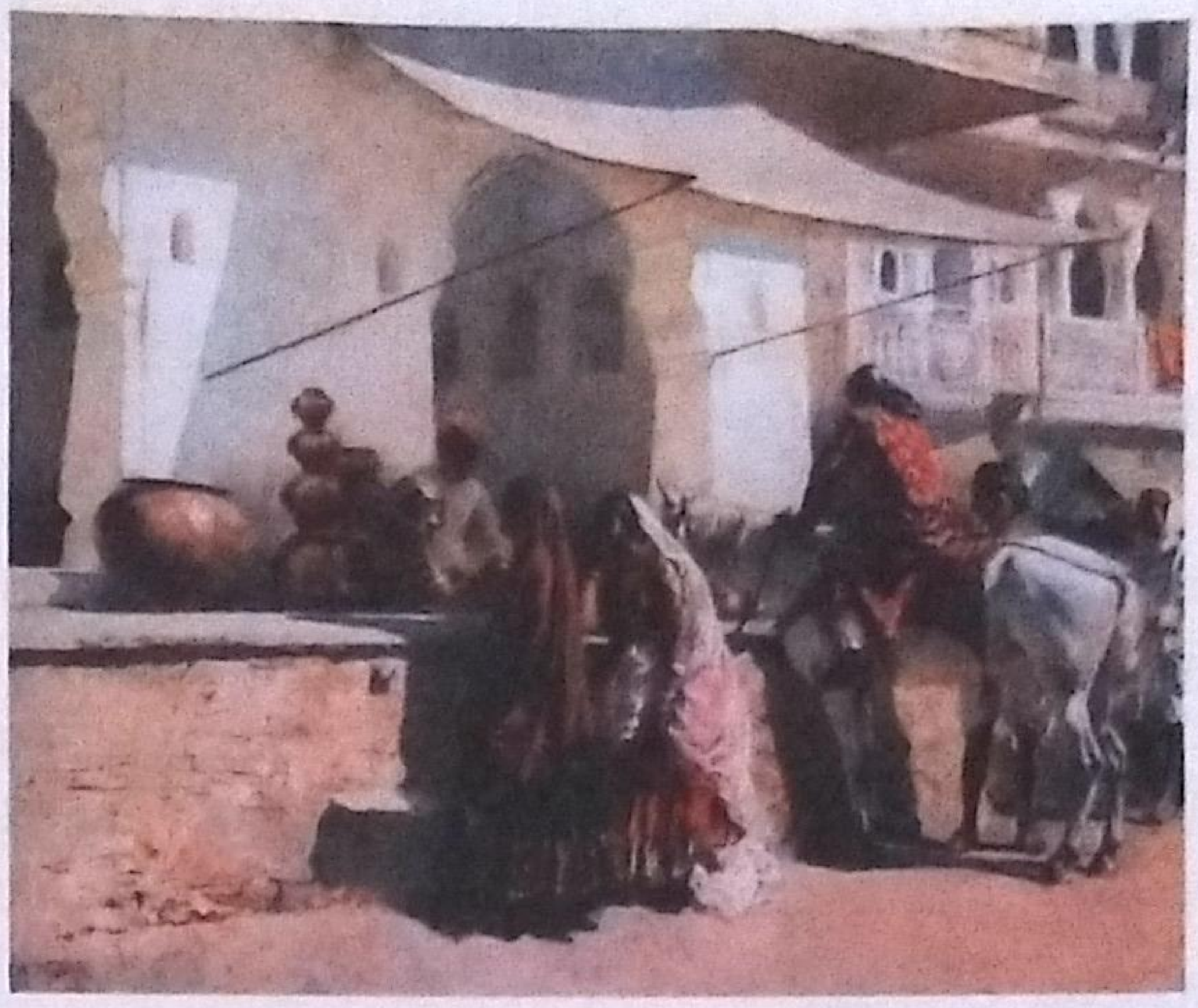
Crafts and Industries

The Kushana period witnessed remarkable progress in crafts and industries. Textile production was highly developed, especially cotton and silk fabrics. Indian textiles were famous in foreign markets.

Metal work and coin-making were also important industries. The Kushanas issued a large number of gold coins, especially under Kanishka. These coins show images of Indian, Greek, and Persian gods, reflecting cultural exchange.

Trade, Traders, and Industries during the Gupta Period

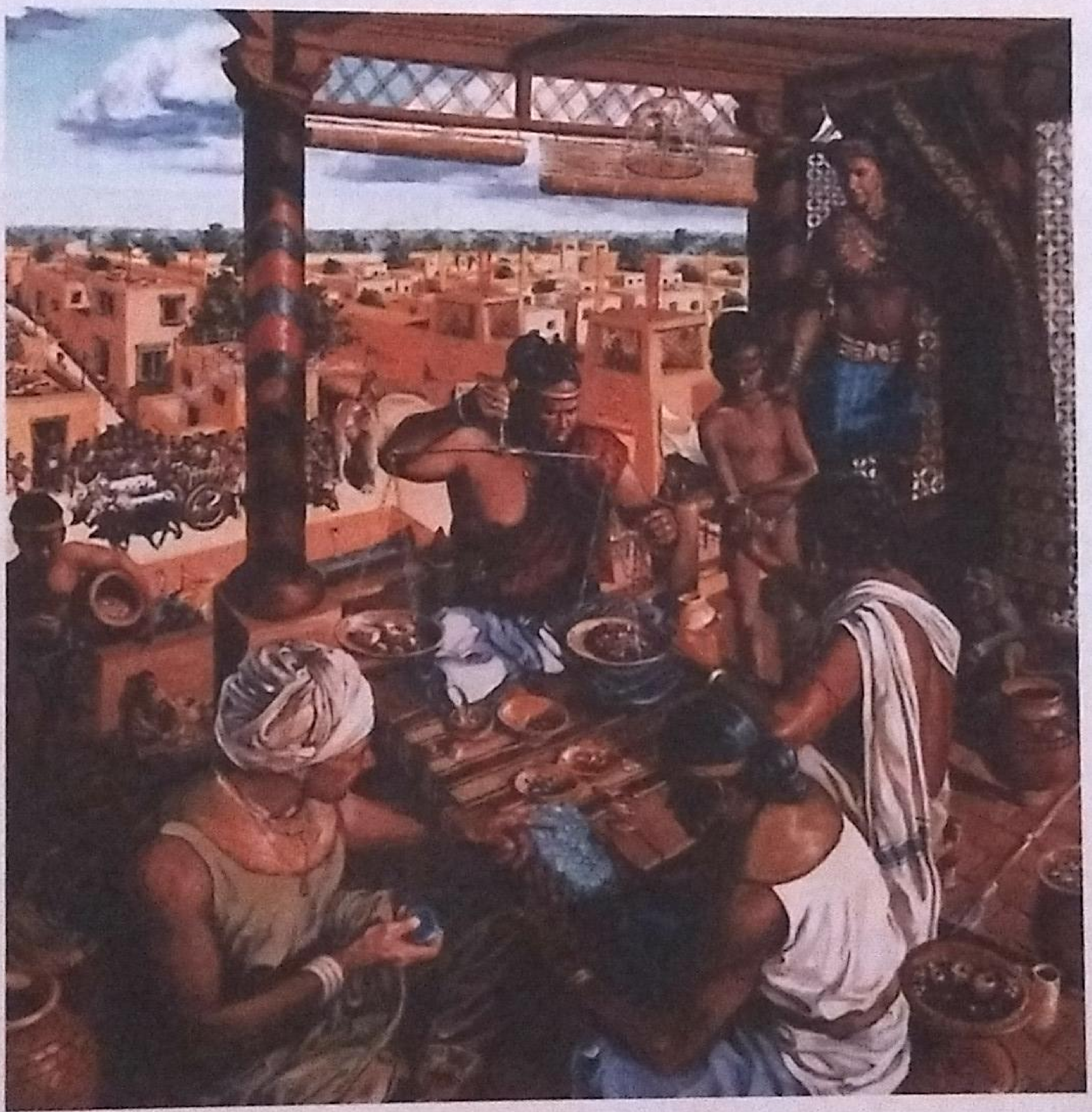
The Gupta Period (c. 4th–6th century CE) is often called the "Golden Age of Ancient India" because of its great achievements in art, science, literature, and economic prosperity. The empire was founded by Sri Gupta and became powerful under rulers like Chandragupta I, Samudragupta, and Chandragupta II. Political stability and strong administration helped trade, crafts, and industries to flourish during this period.



Women in a market

Traders and Merchants

During the Gupta period, traders and merchants played an important role in economic life. Internal trade between villages, towns, and cities was well organised. Merchants carried agricultural products, salt, textiles, spices, metals, and luxury goods from one region to another. Markets were held regularly in towns, and trade centres developed in important cities.

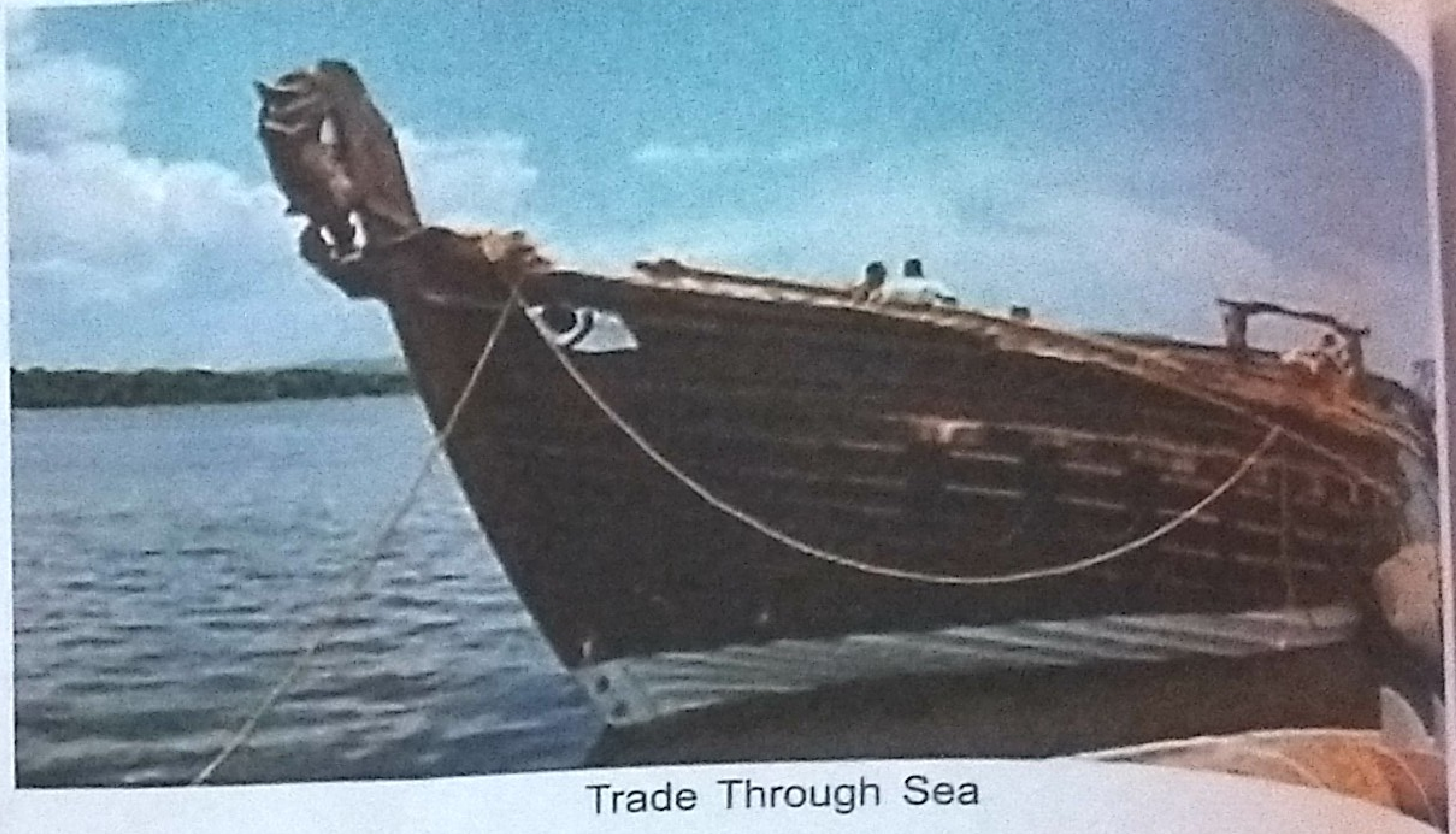


Traders in market for selling their goods

Trade, Traders, Guilds and Industries During the Post-Gupta Period

The period after the decline of the Gupta Empire (around 6th century CE) up to 1000 CE is known as the Post-Gupta or Early Medieval period. During this time, many regional kingdoms rose in different parts of India. Important dynasties included the Harshavardhana in North India, the Dharmapala of the Pala dynasty in Eastern India, and powerful southern rulers like the Rajaraja Chola I of the Chola dynasty. Although political unity declined, trade, crafts, and merchant organizations continued to develop in many regions.

Traders and Merchants



Trade Through Sea

During the Post-Gupta period, traders and merchants remained important in society. However, in the early phase (6th–8th century), long-distance trade declined in some parts of North India due to political instability and foreign invasions. Many towns became smaller, and trade was more localized. Barter system (exchange of goods without money) was also common in rural areas.

From the 8th century onwards, trade revived, especially in South India. Merchant groups became very powerful and wealthy. They donated money to temples and religious institutions, which also became centers of economic activity. Merchants traded agricultural products, textiles, spices, salt, metals, and precious stones. Some merchant groups even traded internationally and maintained contacts with Southeast Asia and the Arab world.

Trade Routes

Land and sea routes continued to connect different parts of India. Important cities such as Kannauj became centers of political and commercial activity. Trade routes linked North India with Central Asia and the Deccan region.

Sea trade became more important during this period. Arab traders played a major role in Indian Ocean trade. Indian ports such as Tamralipti in the east and Nagapattinam in the south were active centres of overseas trade. South Indian rulers, especially the Cholas, encouraged maritime trade. Indian merchants exported spices, textiles, ivory, and precious stones, and imported horses, dates, and luxury goods.

Monsoon winds helped ships travel safely across the Arabian Sea and Bay of Bengal. This led to strong trade relations with Southeast Asia, China, and the Arab countries.

Guilds and Merchant Associations

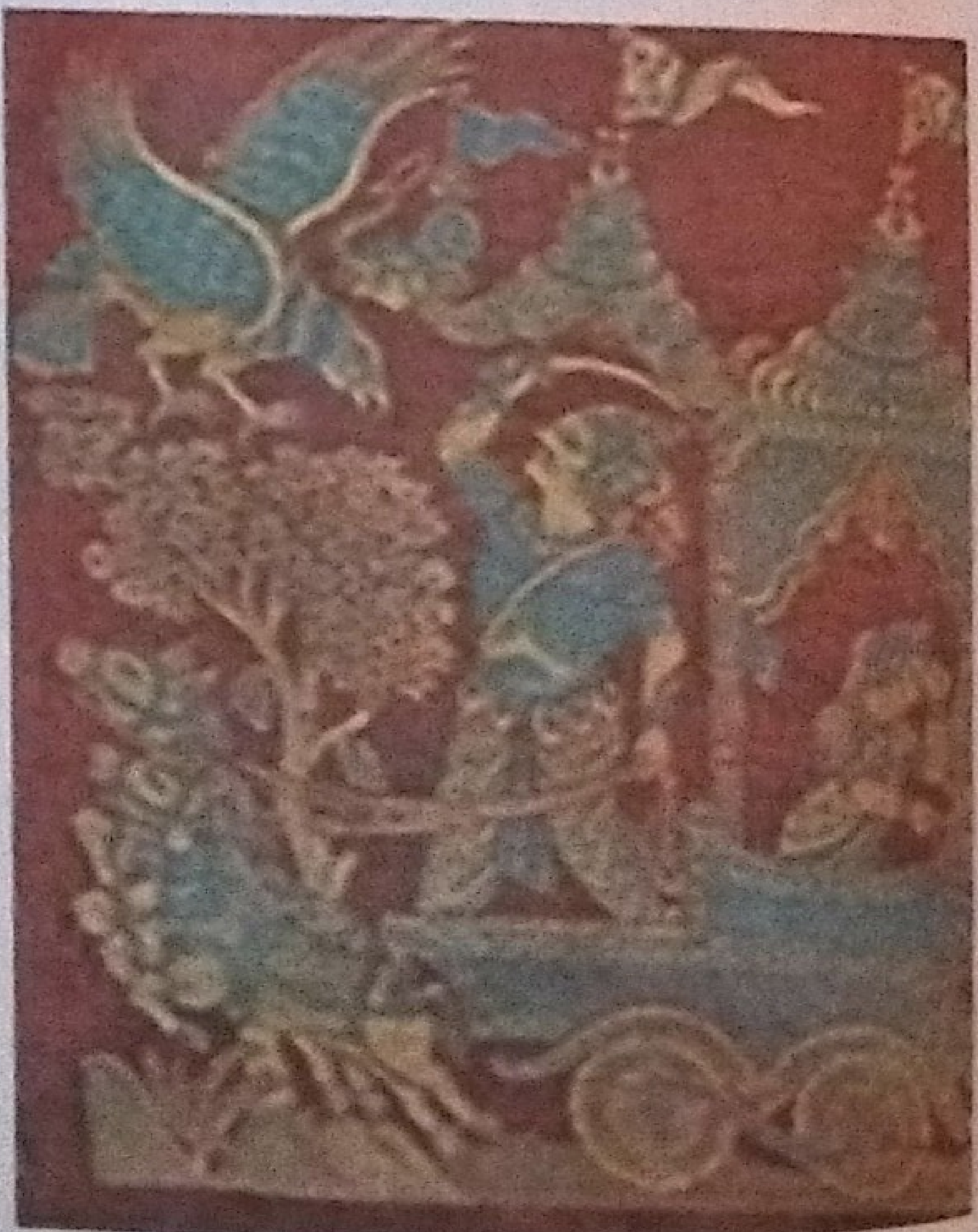
Guilds continued to function during the Post-Gupta period, but they became more regionally organised. In South India, powerful merchant guilds such as the Ayyavole and Manigramam became very influential. These guilds organised trade, protected merchants, and maintained connections with foreign markets.

Crafts and Industries

Crafts and industries developed in different regions during this period. Textile production was one of the most important industries. South Indian cotton and silk fabrics were famous in foreign markets. Weavers formed their own guilds and worked in organised groups.

Metalwork and bronze casting reached high levels of excellence, especially under the Cholas. The beautiful bronze statues of Hindu gods from this period show the skill of craftsmen. Stone carving and temple architecture also flourished, as seen in the grand temples built by regional kings.

Other industries included pottery, oil pressing, sugar production, ivory carving, and jewellry making. Many artisans worked in villages and towns, producing goods for local use as well as for trade. Agriculture remained the main occupation, but crafts and trade supported the economic growth of many regions.



Craft During Post Gupta Period–
Showing Ravana Fighting Jatayu

ngage and Reflect

1. During Mauryan period big merchants were known as
(a) Setthis
(b) Kumara
(c) Sahukaar
(d) Durga

2. Why did caravans of merchants travel together especially across deserts and mountains?
(a) For entertainment
(b) For safety
(c) For educating themselves
(d) For hunting

3. Which among the following cities were main centre for trade during the rule of Kushanas?
(a) Lucknow
(b) Peshawar
(c) Lahore
(d) Mumbai

4. What do you understand by the term Silk Route?

KEY LEARNINGS

- Trade routes during the Mauryan period were well-developed and connected different parts of the empire.
- Guilds, known as shrenis, were associations of traders and craftsmen.
- The Kushana Empire was located at the crossroads of major trade routes connecting India with Central Asia, China, and the Roman Empire.
- In the early phase (6th–8th century), long-distance trade declined in some parts of North India due to political instability and foreign invasions.

Land revenue	:	It is a tax imposed by the government on landowners or cultivators based on the ownership or use of land, especially agricultural land.
Infantry	:	It refers to soldiers who are trained and equipped to fight on foot as ground forces in an army.
Cavalry	:	refers to a branch of the army made up of soldiers who traditionally fought on horseback, and today operate as mobile armored or mechanized units.
Spy	:	It means a person who secretly gathers and reports information about another country, organization, or individual, usually for political or military purposes.
Rebellion	:	It means an organized act of resistance or uprising against authority or government.
Edict	:	It means an official order or proclamation issued by a person in authority.
Epigraphy	:	It is the study and interpretation of inscriptions engraved on stone, metal, or other durable materials.
Aesthetic	:	It means concerned with beauty, art, and the appreciation of pleasing appearance or design.
Patronage	:	It means the support, encouragement, or financial help given by a person or organization to artists, institutions, or causes.
Thrive	:	It means to grow, develop, or be successful and healthy.
Silk Route	:	Silk Route refers to the ancient network of trade routes that connected Asia with Europe, facilitating the exchange of silk, goods, culture, and ideas.
Guild	:	It means an association of people in the same trade or craft formed to protect their interests, maintain standards, and support members.

Exercises

A. Multiple choice questions (MCQ's).

1. The capital of the Mauryan Empire was:
   (a) Taxila (b) Ujjain (c) Pataliputra (d) Vaishali
2. The officers called "Mahamatras" were associated with:
   (a) Gupta army (b) Mauryan administration
   (c) Kushana trade (d) Sangam assemblies
3. The famous ancient university of Nalanda was located in:
   (a) Uttar Pradesh (b) Bihar
   (c) Madhya Pradesh (d) Odisha
4. Nalanda University flourished mainly during the:
   (a) Mauryan period (b) Kushana period (c) Gupta period (d) Delhi Sultanate
5. The Kushanas promoted trade between India and:
   (a) Sri Lanka only (b) Central Asia and Rome
   (c) Japan (d) Indonesia
6. Roman gold coins found in South India indicate:
   (a) Military invasion (b) Religious influence
   (c) Active trade with Rome (d) Roman settlement
7. The Kushana ruler who issued gold coins extensively was:
   (a) Kanishka (b) Vasishka (c) Huvishka (d) Kadphises
8. Which of the following statements is true about Mauryan administration?
   I. The Mauryan administration had a well organized revenue system.
   II. The Mauryan rulers developed a strong military system.
   III. Spies were appointed to keep an eye on officials and public.
   (a) Only I (b) Only II (c) Only III (d) I, II and III
9. Consider the statements given below and choose the correct answer.
   Statement I: The Gupta period is often called the Golden Age of India.
   Statement II: Iron Pillar of Delhi shows remarkable progress in metallurgy during Gupta period.
   (a) Both statements are correct
   (b) Both statements are incorrect
   (c) Statement I is correct but Statement II is incorrect
   (d) Statement I is incorrect but Statement II is correct
10. Match the following items given n column I with those in column II.

	Column A	Column B
A.	Chola	I. Virupaksha Temple
B.	Ajanta and Ellora Caves	II. Brihadeswar Temple
C.	Chalukya	III. Wall paintings

(a) A-II, B-III, C-I (b) A-I, B-II,C-III
(c) A-III, B-II, C-I (d) A-II, B-I, C-III

B. Fill in the blanks

1. Indian ports such as Bharuch and ______________ were busy centres of overseas trade.
2. Members of same profession, such asweavers, metal workers, potters and jewellers formed ______

3. Uttarapatha and Dakshinapatha were famous ____________

4. The famous polished stone pillars of __________ show the high level of skill achieved by Mauryan craftsmen.

5. Tamralipti and Nagapattinam were famous ____________

C. **Very short answer type questions.**

1. Who was the founder of the Mauryan Empire?
2. Name the author of the Arthashastra.
3. What was the capital of Magadha under the Mauryas?
4. What were guilds known as in ancient India?
5. Name the famous university that flourished in Bihar during the Gupta period.
6. Who issued the Allahabad Pillar Inscription?
7. What was the main source of revenue in the Mauryan period?
8. Name the trade route connecting India with China and Central Asia.
9. What were land grants to Brahmanas called during the Gupta period?
10. Name one Chinese traveller who visited India during the Gupta or post-Gupta period.

D. **Short answer type questions.**

1. Explain the rise of Magadha as a powerful kingdom in ancient India.
2. Describe the role of Mahamatras in Mauryan administration.
3. Write a short note on provincial administration under the Mauryas.
4. Explain the nature of Gupta administration. Why is it called decentralized?
5. Describe the importance of Nalanda as a centre of learning.
6. What role did guilds (Shrenis) play in ancient Indian trade?
7. Explain the importance of the Silk Route during the Kushana period.
8. Write a short note on land grants in the Gupta period.
9. Describe the functions of village administration during the Gupta age.
10. Explain the causes for decline of long-distance trade in the post-Gupta period.

E. **Long answer type questions.**

1. Discuss the administrative system of the Mauryan Empire with special reference to central, provincial and local administration.
2. Examine the administrative structure of the Gupta Empire. How was it different from the Mauryan system?
3. Trace the rise and expansion of Magadha. What geographical and political factors contributed to its success?
4. Describe the growth of education and institutions of learning in ancient India. Discuss the role of Nalanda and Takshashila.
5. Analyse the trade and commerce during the Mauryan period. How did the state regulate trade?
6. Discuss the role of the Kushanas in promoting trade between India and Central Asia and the Roman world.
7. Explain the organisation, functions and economic importance of guilds during the Maurya and Gupta periods.
8. Describe the internal and external trade routes of ancient India up to 1000 CE.
9. Discuss the cultural developments of the Gupta period. Why is it regarded as the "Golden Age" of India?
10. Examine the changes in trade, administration and economy during the post-Gupta period up to 1000 CE.

F. **Assertion-Reason questions.**

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)

(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(c) (A) is correct but (R) is wrong

(d) (A) is wrong but (R) is correct

1. **Assertion (A):** The Mauryan Empire had a highly centralized administrative system.

   Reason (R): The king appointed provincial governors, often royal princes, and officials like Mahamatras t supervise administration.

2. **Assertion (A):** The Gupta administration is described as decentralized in nature.

   Reason (R): The Guptas frequently issued land grants to Brahmanas and officials, reducing direct contro over some regions.

3. **Assertion (A):** Nalanda became an important centre of higher learning during the Gupta and post-Gupta periods.

   Reason (R): It attracted scholars from foreign countries such as China and Korea.waves.

4. **Assertion (A):** The Kushana rulers benefited greatly from controlling parts of the Silk Route.

   Reason (R): The Silk Route connected India with Central Asia and the Roman Empire, promoting long-distance trade.

G. Case-based questions.

Read the given text and answer the following quetions.

Between the 6th century BCE and 1000 CE, several powerful kingdoms and empires shaped the political, econom and cultural landscape of the Indian subcontinent. The rise of Magadha was supported by its fertile lands, iro resources and strategic location along river routes. Under the Mauryas, especially through the administrati ideas found in the Arthashastra of Kautilya and the policies of Ashoka, a highly centralized system of governan developed with officials such as Mahamatras and provincial governors.

Later, during the Gupta period, rulers like Samudragupta adopted a more decentralized administrative structur Land grants (agraharas) were given to Brahmanas and officials, which gradually increased local autonomy. In the sphere of knowledge and culture, institutions such as Nalanda University emerged as great centres o learning, attracting students from distant lands. Trade and commerce flourished under the Mauryas, Kushanas a Guptas. The Kushanas controlled vital stretches of the Silk Route, facilitating exchange between India, Central As and the Roman world. Merchant guilds (Shrenis) played an important role in regulating trade, acting as banke and maintaining trade networks across regions.

1. Explain the main features of the Mauryan administrative system. How did it differ from the Gupta administrative structure?
2. Discuss the role of institutions like Nalanda in promoting the quest for knowledge and cultural exchange in ancient India.ss
3. Analyse the importance of trade routes and guilds in the economic life of India during the Maurya, Kushan and Gupta periods. What changes occurred in the post-Gupta period?

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9

Theme VI : Democracy

Understanding Democracy

KEY CONCEPTS

- Meaning of Democracy
- Features of Democracy
- Democratic System in the World
- Roots of Democracy in India
- Types of Democracy
- Challenges to Democracy in India

MEANING OF DEMOCRACY

A famous political philosopher of the 20th century, Reinhold Niebuhr, stated, "Man's capacity for justice makes democracy possible and man's capacity for injustice makes democracy necessary." This statement highlights why democracy is both desirable and essential.

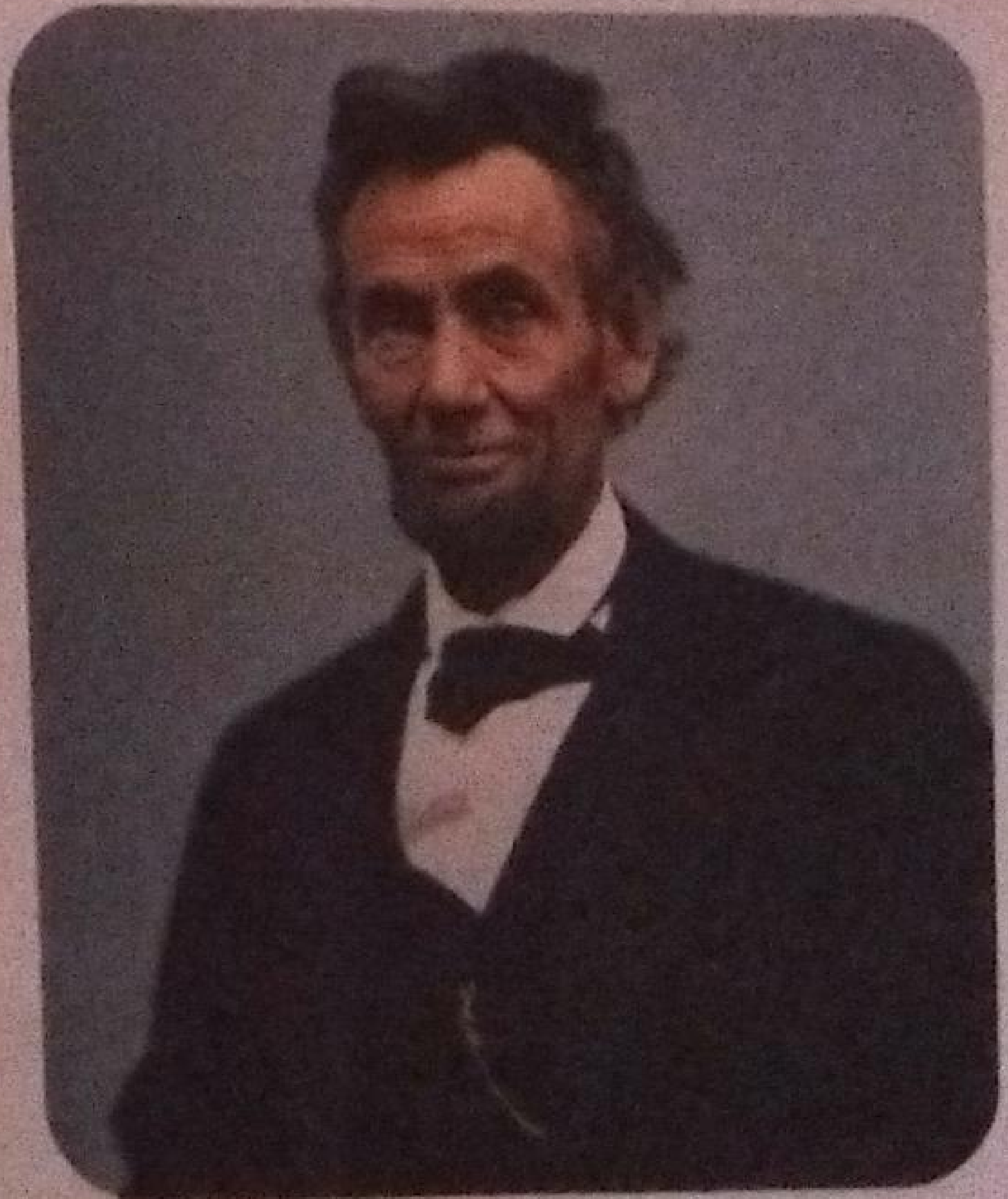
Democracy is one of the most widely accepted forms of government in the contemporary world. What makes democracy so popular? To answer this we must understand what democracy truly means and examine whether it is indeed best form of government capable of meeting the challenges of modern society.

Many definitions of 'democracy' have been given by eminent authorities on the subject. The term 'democracy' was coined in ancient Athens in fifth century BCE. It originated from the Greek word 'demokratia'. The components of the word are 'demos' **people;** 'kratos' **power**. Thus, democracy means "rule by the people."

Democracy in Athens is the earliest example of the system and it corresponds to some of the modern ideas about democratic rule. The entire adult male population of Athens could vote, whether they were poor or rich did not matter. All Athenian male citizens were free to vote and speak in the Assembly. Athenians did not vote for representatives but made decisions directly.

The simplest definition of democracy is that "**Democracy is a form of government in which the rulers are elected by the people.**" This can be achieved by implementing a system of voting in which the majority of people rule, either directly or indirectly through elected representatives. Elections are necessary and basic condition of democracy. In fact, voting by all adults is the main feature which separates democracy from other forms of government, for example, a monarchy.

Former President of the United States of America, Abraham Lincoln, defined democracy as **"the government of the people, by the people, for the people."** This definition emphasises participation, representation, and welfare of the people.



Abraham Lincoln

History shows that elections alone are not sufficient to ensure democracy. A dictator, like Hitler or Mussolini, may have been elected by the people at some stage, but once he starts acting in a manner in which his policies are not meant for the welfare of the people, the government ceases to be democratic.

Mussolini and Hitler

What Constitutes the People

What do we understand by the word people? The Greeks did not give the voting rights to women, slaves, or foreigners therefore, it was not universal franchise. Switzerland granted women the right to vote at the federal level in 1971. It practises direct democracy through referendums and popular initiatives, though not all government decisions are decided directly by citizens. In a vast and populous country like India it is not practical to adopt direct democracy at the national level; therefore, India follows representative democracy.

In parliamentary democracies, decisions are generally taken by the majority of elected representatives, while ensuring protection of minority rights.

Every government imposes certain restrictions on people who can be elected. Some restrictions on age of maturity are also needed. Thus, the word people excludes certain groups, e.g., those below 18 years, or people who may be criminals. Above all no government can possibly ensure that the opinion of every elected representative shall be incorporated in all government legislations.

KEY LEARNINGS

- Democracy is widely practised across the world, although not all countries follow democratic systems.
- The term 'democracy' was coined in ancient Athens in the fifth century BCE. It originated from the Greek word 'demokratia'. The components of the word are 'demos' people; 'kratos' power. Thus, democracy means "rule by the people".
- Former President of the United States of America, Abraham Lincoln defined democracy as "the government of the people, by the people, for the people".

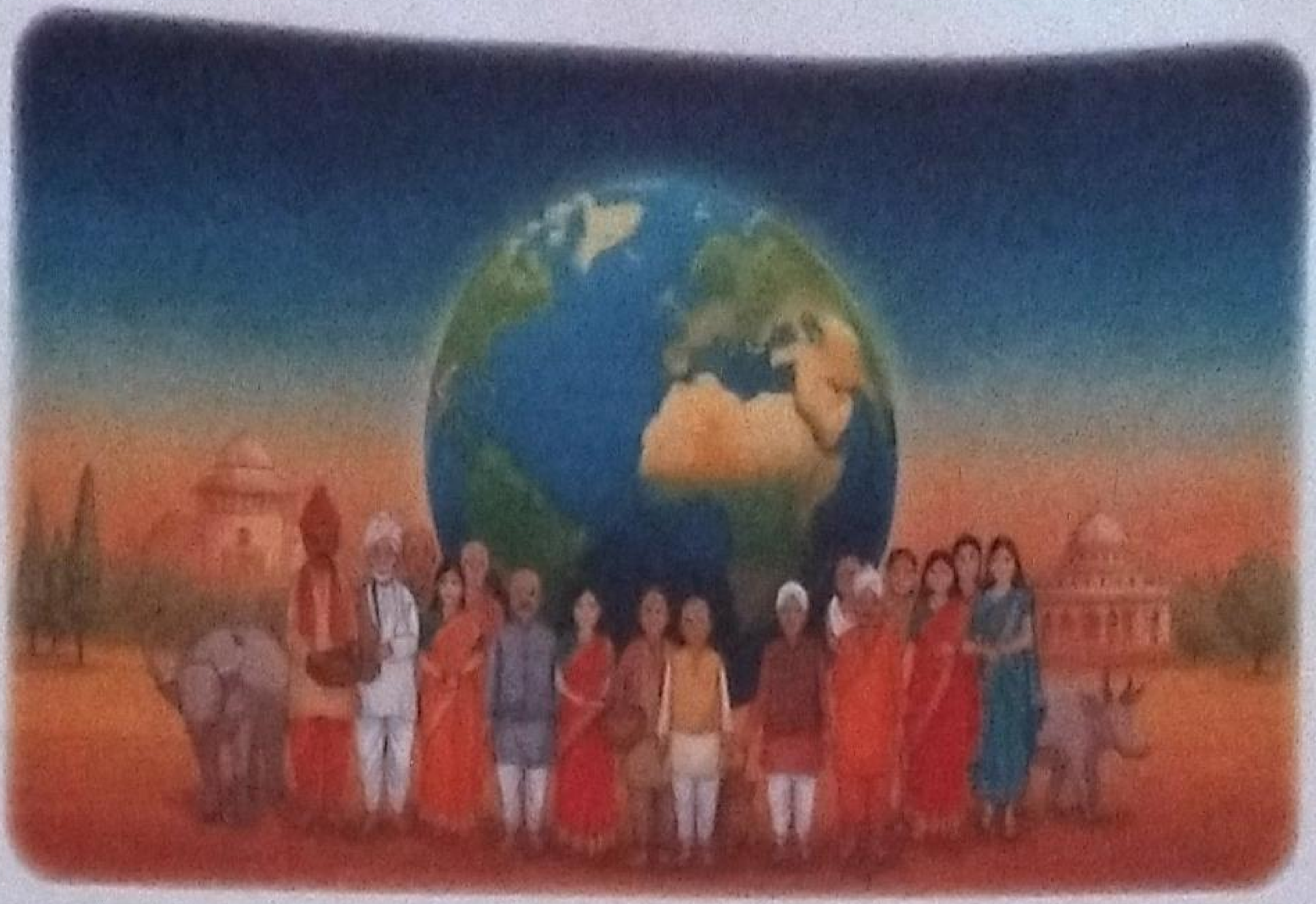
Engage and Reflect

1. The word 'Democracy' comes from the Greek word
   (a) Democracia (b) Demokratia (c) Demos (d) Kratia
2. Who among the following defined democracy as "the government of the people, by the people, for the people"?
   (a) Abraham Lincoln (b) George Washington (c) Reinhold Niebuhr (d) Winston Churchill
3. What is direct democracy?

ROOTS OF DEMOCRACY IN INDIA

India has a long history of democratic practices that developed long before the rise of modern democracies worldwide. These early traditions laid the foundation for ideas such as participation, consultation, and collective decision-making, which continue to shape present-day democracy in India.

Vedic society displayed certain consultative features, though it was not democratic in the modern sense. They believed in shared decision-making and the active participation of people in governance. Institutions such as *Sabhas* and *Samitis* functioned as early democratic bodies where power rested with the people. Authority was neither centralised nor hereditary. It was based on government by participation. Brotherhood of mankind expressed through the principle of *Vasudhaiva Kutumbakam*, meaning that the world is one family, formed the moral foundation of Aryan democracy.



Vasudhaiva Kutumbakam—The world is one family, united by peace, respect, and shared humanity

During the Vedic period, assemblies such as the *Sabha* and *Samiti* played an important role in governance. These bodies discussed public matters and advised the king, showing that rulers did not enjoy absolute power and were expected to consult the people.

Between 600 BCE and 400 BCE, many large kingdoms and republics known as *Mahajanapadas* emerged in northern India. Some of these, such as the Vajjis, followed a republican system of government. In these states, rulers were not hereditary but were chosen through election. Governance was based on collective decision-making, with discussions and debates playing an important role.

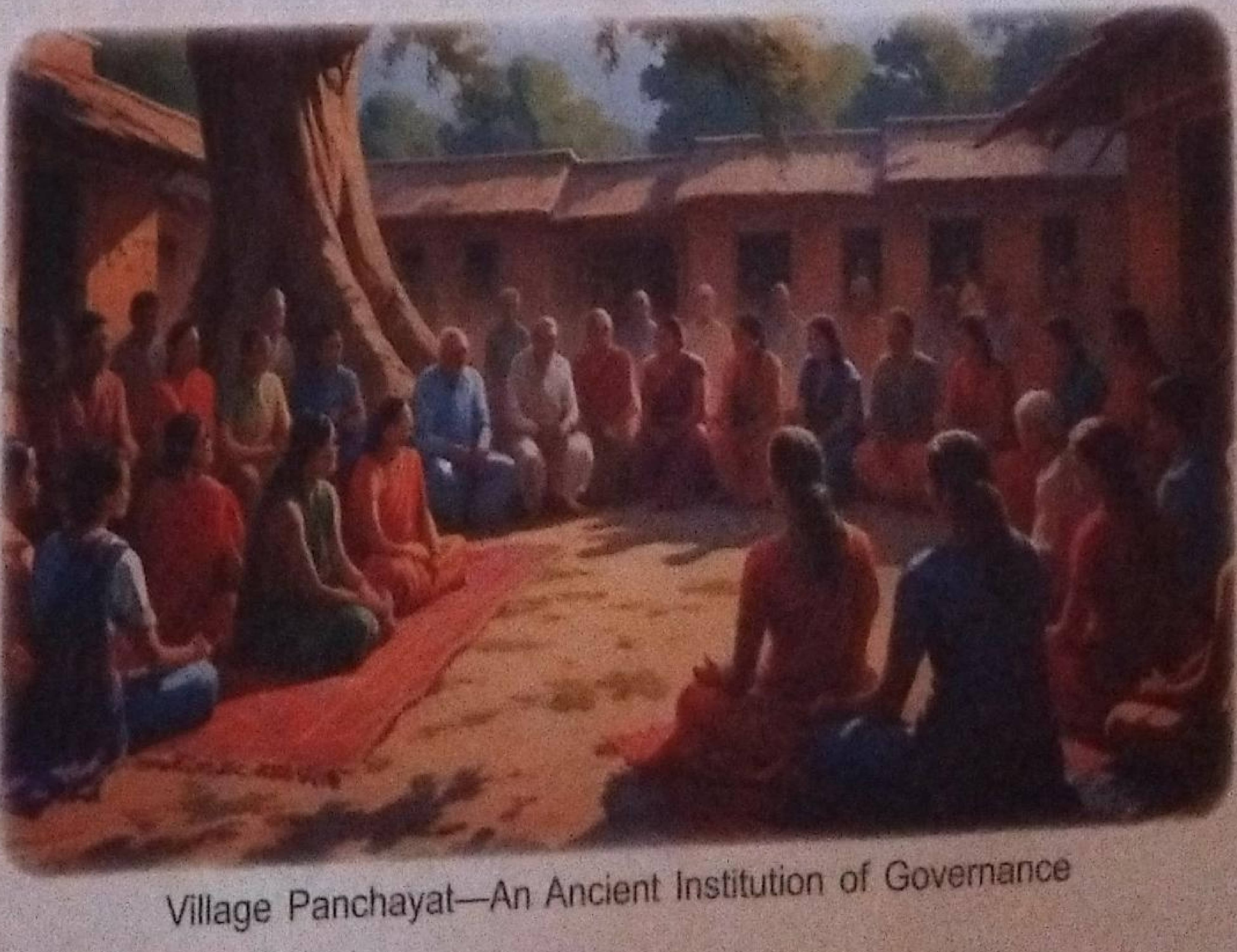
The Vajji confederacy is especially known for its democratic traditions. The Buddhist text *Mahaparinibbaṇa Sutta* describes the Vajjis as a well-organised republic with strong community rule. It praises them for holding regular assemblies, making decisions through mutual agreement, and ensuring fair representation. The Sakya Republic also followed democratic practices. The head of the Sakya clan, known as the Raja, was elected by an assembly of elders. The leader was selected through discussion among elders, reflecting collective decision-making within the ruling group.

The Panchayat system forms the foundation of modern Indian democracy, but its origins go back thousands of years. The word 'Panchayat' is derived from 'panch', meaning five, and refers to a council of five respected elders chosen by the community. This system was democratic in nature because the members were selected by the people and were responsible to them. The Panchayat played an important role in village life by taking key decisions, settling disputes, and delivering justice, thus managing the daily affairs of the community.

Archaeological evidence from Lothal indicates advanced civic administration; however, there is no clear proof of elected councils or democratic institutions.

At the local level, village councils or Panchayats managed administration, justice, and welfare. This system encouraged people's participation and decentralisation of power, which remains an important feature of Indian democracy even today.

The Gupta Empire is often described as the Golden Age of India. This period saw great progress in art, science, and literature, as well as in ideas related to governance and public life. Administration during the Gupta period was marked by a high degree of decentralisation and local self-government. Village councils, known as *Sabhas*, played an important role in



Village Panchayat—An Ancient Institution of Governance managing local affairs and delivering justice. These councils were made up of local landowners and merch chosen by the community, and they functioned independently, making decisions that affected the daily liv of the people.

These early democratic traditions influenced modern democracy in many ways. They promoted people participation in governance, inspired institutions of local self-government, and encouraged respect f discussion and consensus. Thus, modern Indian democracy is deeply rooted in India's own historical experien rather than being entirely adopted from other countries.

DID YOU KNOW? According to Greek scholars of Alexander's time, some form of democracy was used by republics in ancient India during the sixth century BCE, around the time of Buddha. "The Sabarcae and Sambastal states (now in Pakistan and Afghanistan) followed a form of government which was democratic and not regal."

KEY LEARNINGS

- Democratic ideas existed in India long before the rise of modern democracies.
- Vedic assemblies and Panchayats allowed people to participate in decision-making.
- Republics such as the Vajjis and Sakyas followed elected leadership and collective rule.
- Local self-government through village councils ensured decentralisation of power.
- Modern Indian democracy has grown from these early Indian democratic traditions.

FEATURES OF DEMOCRACY

- **Final decision by elected representatives :** In a democracy the final decision-making authority rest with elected representatives, but it must function within the limits of the Constitution and is subjec to judicial review.
- **Free and fair elections :** A democracy must be based on a free and fair election where those currently power have a fair chance of losing. (i) First, voters must be honestly counted (a proper census). (ii) Voter should vote freely without any kind of pressure from those in power. (iii) Voters should have the right choose freely from among those competing in the elections. (iv) Elections should be held regularly and b strictly impartial. In India the Election Commission of India ensures free and fair elections.
- **Universal suffrage :** All adults have the right to vote in the elections irrespective of their colour, caste religion, gender, etc. In a democracy each adult citizen must have one vote and each vote must hav one value.

DID YOU KNOW? In India, people got the right to vote in 1950, when the Constitution of India came into force on 26 January 1950. From the beginning, India adopted Universal Adult Franchise, which meant that every citizen aged 21 years and above had the right to vote, regardless of caste, religion, gender, or wealth.Later, in 1988, the 61st Constitutional Amendment Act reduced the voting age from 21 years to 18 years.

- **Freedom of expression :** Citizens should have the right to express their opinion without any fear. The should be allowed to discuss the policies of the government. They can also demonstrate, criticise, organis meetings or campaign on public issues.

- **Freedom to form associations :** Citizens have the right to form associations, unions, and political parties, and to join or leave them freely, subject to legal restrictions in the interest of public order and national security.

DID YOU KNOW? Right to Information (RTI) Act was passed by Indian Parliament on 15 June 2005 and came fully into force on 12 October 2005. Every-day over 4800 RTI applications are filed. Under the provisions of this Act, any citizen of India may request information from a public authority (a body of government or "instrumentality of the State") which is required to reply expeditiously or within thirty days. The RTI Act strengthens transparency and accountability in governance.

- **Freedom of culture and religion :** A democracy allows people to follow their own beliefs and faith. People can openly and freely follow any religion, and speak their own language. The rights of the minorities should not be in any way less than those of the majority.
- **Individual freedoms :** In a democracy, citizens enjoy personal freedoms such as freedom of movement, residence, occupation, and education. However, these freedoms are subject to reasonable restrictions in the interest of public order, morality, and national security.

Independent India's first elections were held in 1951-52

- **Rule of law :** In a democracy, the rule of law prevails. No individual or authority is above the law. The police and military function under civilian control. The judiciary is independent, protects the rights of the individuals and its decisions are respected by the government. Thus, a democratic government rules within limits set by constitutional law and citizens' rights.

Engage and Reflect

In some countries, such as China, only the ruling party can put up candidates. Voters have to choose between the two candidates put up by the ruling party. No one else has a chance. Is this democracy?

- All of the above are the minimum necessary features of any country aspiring to be called a democratic country. In a democracy, "The will of the people is the basis of the government." It is expressed by universal and equal suffrage through secret vote.
- Democracy demands accountability from all organs of government — the legislature, executive and judiciary — within the framework of the Constitution.

The absence of any of these basic features reveals whether a country, claiming to be democratic, is really democratic or not. It is easy to see that no country enjoys all the rights needed in a democracy or has institutions which work with equal effectiveness. No country provides unlimited freedoms. Even advanced democracies such as France and the United States impose certain legal restrictions to maintain public order and security. There are certain defects common to all forms of government. They arise because of certain inherent and instinctive weaknesses in human nature.

TYPES OF DEMOCRACY

Direct versus Representative Democracy

In ancient Greece, particularly Athens, adult male citizens directly participated in discussions and deci making, while women, slaves, and foreigners were excluded. But in many vast, modern countries d democracy is impossible. The vast population cannot collect at one place, for example it is just impossible almost 1 billion voters of India, to find a place where 50 to 60 thousand people can assemble for discuss

People Participating in a Representative Democracy

- People engaged in different occupations or businesses cannot meet at the same time. Direct participation was possible in small countries with a few occupations.
- A system of representation had to be devised so that there could be a popular government. In this system people elect their representatives who make the laws and supervise the functioning of the government.
- So what is the difference? Is it still a democratic system? Yes it is, because in representative democracy, people are the supreme authority. People choose their government by electing their representatives. Elected representatives exercise power on people's behalf. They remain in po as long as they enjoy the confidence of the people and can be removed through periodic elections.
- Some critics of democracy think that representative democracy is not a true democracy. How ca handful of representatives speak for the interests and personal views of the country's citizens? Is criticism justified?

Let's consider a direct democracy with a population of 3000 people. Do all the 3000 people speak w discussing an issue. Are the views of all the 2000-3000 people taken into consideration? Is it possible? T assembly would never have the time to solve any issue in this way. Even in such a democracy only a f speak. These few are chosen by the people before the assembly and the rest listen to them. Thus issues solved. It is practically impossible to conduct a meeting where everybody is going to speak. The result wo be complete chaos.

Engage and Reflect

Why do you think most countries prefer representat democracy instead of direct democracy?

To avoid this, in a democracy we frame rules which give every citizen an opportunity to choose their representatives. These representatives speak on behalf of the majority. Thus, representative democracy is a participatory democracy where all citizens vote to choose their representatives.

KEY LEARNINGS

- In democratic countries, all adults have the right to vote in the elections irrespective of their colour, cas creed and religion.
- A democracy allows people to follow their own beliefs and faith. People can openly and freely follow a religion, speak their own language, etc.
- In democratic countries, the judiciary is independent, protects the rights of the individuals and the decisio are respected by the governments.
- Democracy demands accountability from all organs of the government — the legislature, judiciary a executive.

DEMOCRATIC SYSTEM IN THE WORLD

Most democracies today follow the system of representative democracy, in which citizens elect their representatives to govern on their behalf. However, democracies do not function in the same way everywhere. There are two main forms of representative democracy.

(a) Parliamentary Democracy

Parliamentary democracy is a system of government in which the executive derives its authority from the legislature and remains accountable to it. The members of the executive are also part of the legislature. The head of the government, usually the Prime Minister, is chosen from the majority party or coalition in the legislature. The Prime Minister and the Council of Ministers are responsible for implementing government policies.

The Council of Ministers is collectively responsible to the legislature, which makes the government accountable for its actions. India has a bicameral legislature made up of the Lok Sabha and the Rajya Sabha. In our country, the Council of Ministers can continue working as long as they have the confidence of the Lok Sabha. In this form of government, citizens elect the members of the legislature. Elected members become the ministers (part of the executive). In a parliamentary system, there is a close relationship between the executive and legislative branches, with the executive being dependent on the confidence of the legislature.

In this system, the President is the formal or nominal head of the executive, while the Prime Minister is the real head of the government. The President represents the State, but the Prime Minister is responsible for running the government and managing its day-to-day affairs. Countries with parliamentary systems include India, the United Kingdom, Germany, Japan, and Canada.

Engage and Reflect

Can a country be democratic even if it follows different forms like parliamentary or presidential system? Discuss.

New Parliamant House of India (Sansad Bhavan)

(b) Presidential Democracy

The presidential form of government is based on the principle of separation of powers between the executive and the legislature. Under this system, the executive is independent of the control of the legislature.

In the presidential form of government, the head of the State is also the real executive head. The President directly exercises executive powers and does not function merely as a nominal authority. This system is based on the principle of separation of powers, in which the executive, legislature, and judiciary work independently. The executive is not responsible to the legislature and cannot dissolve it, while the judiciary remains independent of both the executive and the legislature.

At the same time, the system follows the principle of checks and balances. Although the three organs of government are separate, they keep a check on one another to prevent misuse of power. The President holds significant executive authority but these powers are limited by constitutional provisions and checks and balances. Another important feature of the presidential system is that political homogeneity is not essential. Members of the cabinet do not have to belong to the same political party as the President. At present, countries like the USA, Brazil, etc are having presidential form of government. Sri Lanka has semi-presidential system not a purely presidential or purely parliamentary.

Alternatives to Democracy

Monarchy is the rule by one person. In ancient times it was the most common form of government in the state. He combined in himself the functions of the military commander, the lawmaker, the executive officer of the state and also the judge.

Under **Absolute Monarchy**, the king is the government, and his authority is unlimited. Most monarchies are hereditary. Before the revolution, the Czars were absolute rulers of Russia. Some monarchs claimed they got their authority directly from God (the Divine Right Theory). They claimed they were answerable to God and not to their subjects.

Saudi Arabia

Saudi Arabia has been ruled by the Saudi royal family since 1932, when the modern Kingdom of Saudi Arabia was established. It is an example of an absolute Monarchy. All powers lie in the hands of the Saudi royal family. All the ministers and members belong to the royal family.

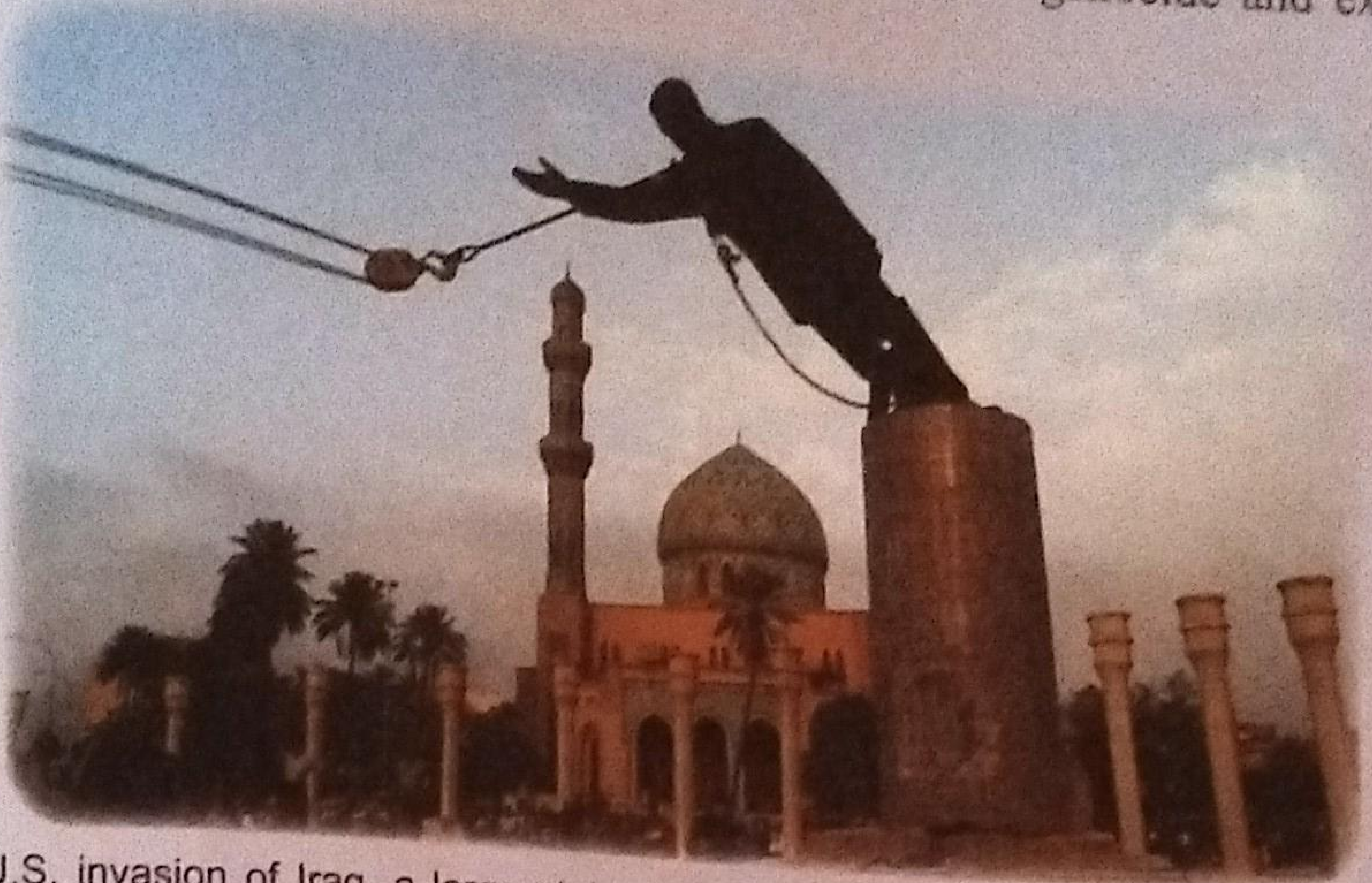
The power of the monarch is regarded as legitimate based on the right of birth.

Constitutional Monarchy : The United Kingdom is a typical example of constitutional monarchy. There is the king or the queen as the Head of the State but the sovereign does not exercise any real authority. The monarch in the United Kingdom performs largely ceremonial functions and acts on the advice of the Prime Minister and the Council of Ministers. Actually in U.K. representative democracy prevails. People elect their representatives to the parliament and they govern on their behalf.

Dictatorship : Under dictatorship, the governments is not accountable to the people and may disregard public opinion. Power is concentrated in the hands of one person or a small group. All benefits are enjoyed by those in power and people who support the rulers. The poor and the weak suffer as they are excluded from the benefits.

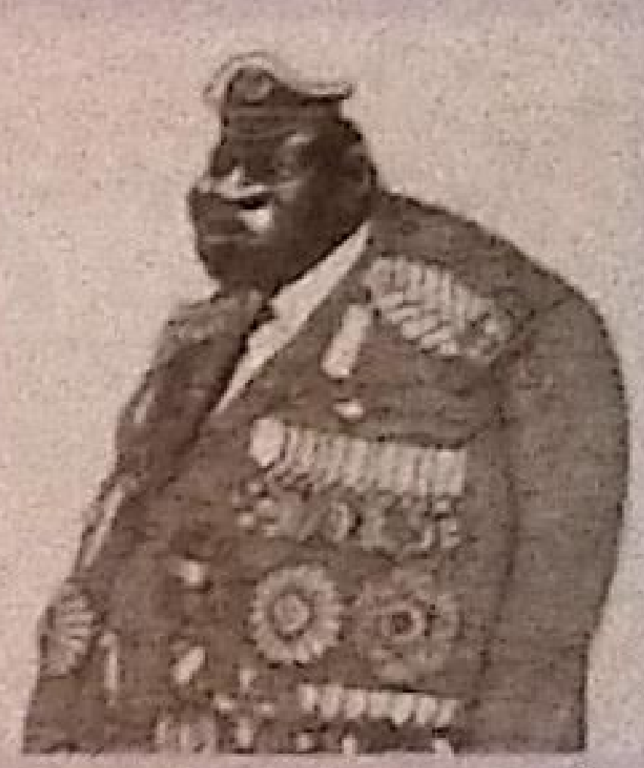
Military Dictatorship

Iraq was ruled by the Ba'ath Party from 1968, and Saddam Hussein served as President from 1979 to 2003. The military dictator Saddam Hussein had full and absolute power in the country and ordinary citizens had no say in the decision making process. He was later toppled after the military action by USA, and allies in 2003. He was then arrested, tried by an Iraqi court, found guilty of genocide and executed on December 30, 2006.



During the U.S. invasion of Iraq, a large statue of Saddam Hussein in Baghdad's Firdos Square was destroyed by Iraqi civilians and United States Marines.

Idi Amin became the ruler of Uganda in 1971 after a military coup. During his rule 300,000 Ugandans lost their lives and he forced the Indian minority to leave Uganda. His reign was ended after an invasion by Tanzanian forces aided by Ugandan exiles in 1979.



Idi Amin's Caricature

Under **military dictatorships,** power is concentrated in the hands of military leaders, and political opposition is often suppressed. Those in power amass wealth illegally. Limited freedom of speech in such regimes often reduces public accountability and criticism of government policies. They do not fear any opposition and, therefore do not fear losing in elections.

Theocracy : Iran is an Islamic Republic that combines elements of theocracy and democracy. Iran has elected institutions (President, Parliament) along with religious oversight. In a revolution overthrew the Shah of Persia and installed a religious government. The government is made up of majority religion, i.e., Islam. Civil laws are made to conform to the religious teachings of Islam. The highest authority is the Supreme Leader who is an Ayatollah.

Democracy has proved itself superior to both monarchy and the government of one or a few.

Democracy also has a built-in mechanism to see that rulers do not go astray. Regular and periodical elections give the people a chance to discard people who have a bad record.

Democracy provides mechanisms such as elections and reservations (in countries like India) to enhance representation of minority sections. It is thus superior to all other forms of government.

Why Democracy has Spread

Democracy promises equality to all. Every citizen has a right to vote contest elections and become an elected representative.

In non-democratic governments those in power do not want to give it up. They resist attempts to wrest power from their hands. To have a democratic government people have to struggle for it, as they did in Poland during the Solidarity movement in the 1980s. Various social groups including workers, students, and civil society organisations have played important roles in democratic movements.

Democracy has also spread because of three major events :

(i) Second World War

(ii) Decolonisation

(iii) Collapse of the Soviet Union.

These three historical factors started a chain of events world-wide which helped boost democracy. There other, internal forces and conditions that were conducive for the spread of democracy.

KEY LEARNINGS

- Democracy treats everyone as equal and works on the belief that every citizen has a right to decide who to vote for, who should rule and what should the policies be.
- Democracy gives an opportunity to people to express their views through debates. It helps in evolving a consensus of opinion through persuasion and compromise.
- A democracy is not the rule of the majority. We choose a government on the basis of majority votes but the elected government protects the interests of all — majority as well as minority.
- Democracy has been the result of three major events, i.e. the second World War, Decolonisation and the collapse of the Soviet Union.

CHALLENGES OF DEMOCRACY

Democracy may be the best form of government but it has to face many problems.

- Wide gaps between rich and poor allow the wealthy to dominate politics, often leading to exploitation of underprivileged voters.
- The increasing gap, the growing economic inequality has an adverse impact on politics. Policy-makers may sometimes prioritise the interests of influential economic groups over those of weaker sections. The poor are not given enough attention, their grievances are not properly addressed.
- Economic inequalities have an adverse effect on elections. People with money have more chances of winning elections. More and more money is being spent on elections — on campaigning, publicity, etc. Huge contributions are made to the election campaigns. People who make the contributions expect favours from the parties and leaders they help. The ordinary citizens cannot do this.

Voters may face coercion or intimidation during elections. How can people, elected by corrupt means, be true representatives of the people? Democracies have been harmed by the practice of corruption, inefficiency and negligence.

These factors lead people to lose interest in democracy. People start losing confidence in democratic political institutions. Many people have lost faith in political parties and many do not trust government officials. But still the majority of people, two-third, think that a democratic political system is best suitable to our country. They feel that democratic institutions are not working properly and are dissatisfied with the present state of affairs.

- The need of the hour is to establish a healthy democracy based on a democratic society. Correct democratic values have to be taught and imbibed at the grassroot levels — beginning with family, friends and neighbourhood.
- All out effort should be made to root out corruption from public dealings and choose a government which is sensitive to the needs of the people.
- Last of all, the voters must realise how important it is to exercise their voting rights. It is in their hands to elect representatives who can govern with integrity, commitment and ability.

Winston Churchill, Prime Minister of U.K. during the Second World War, said :

> "Many forms of government have been tried in this world of sin and woe. No one pretends that democracy is perfect or all-wise. Indeed, it has been said that democracy is the worst form of government except all those other forms that have been tried from time to time."

In the end we can conclude that democracy cannot find immediate solutions to all problems. In countries like India, with a large and diverse population and significant socio-economic challenges, fulfilling public expectations can be complex. But democracy is still a better form of government. It is because of the values a democratic government stands for. These values are freedom, equality and justice. It is upto us to consolidate democracy so that these values are realised in society.

KEY LEARNINGS

- Economic inequalities have an adverse effect on elections. Running candidates with money have more chances of winning an election. More and more money is being spent on elections – on campaigning, publicity, etc. to attract voters.
- Voters must realise how important, it is to exercise their voting rights. It is in their hands to elect representatives who can govern with integrity, commitment and ability.

GLOSSARY

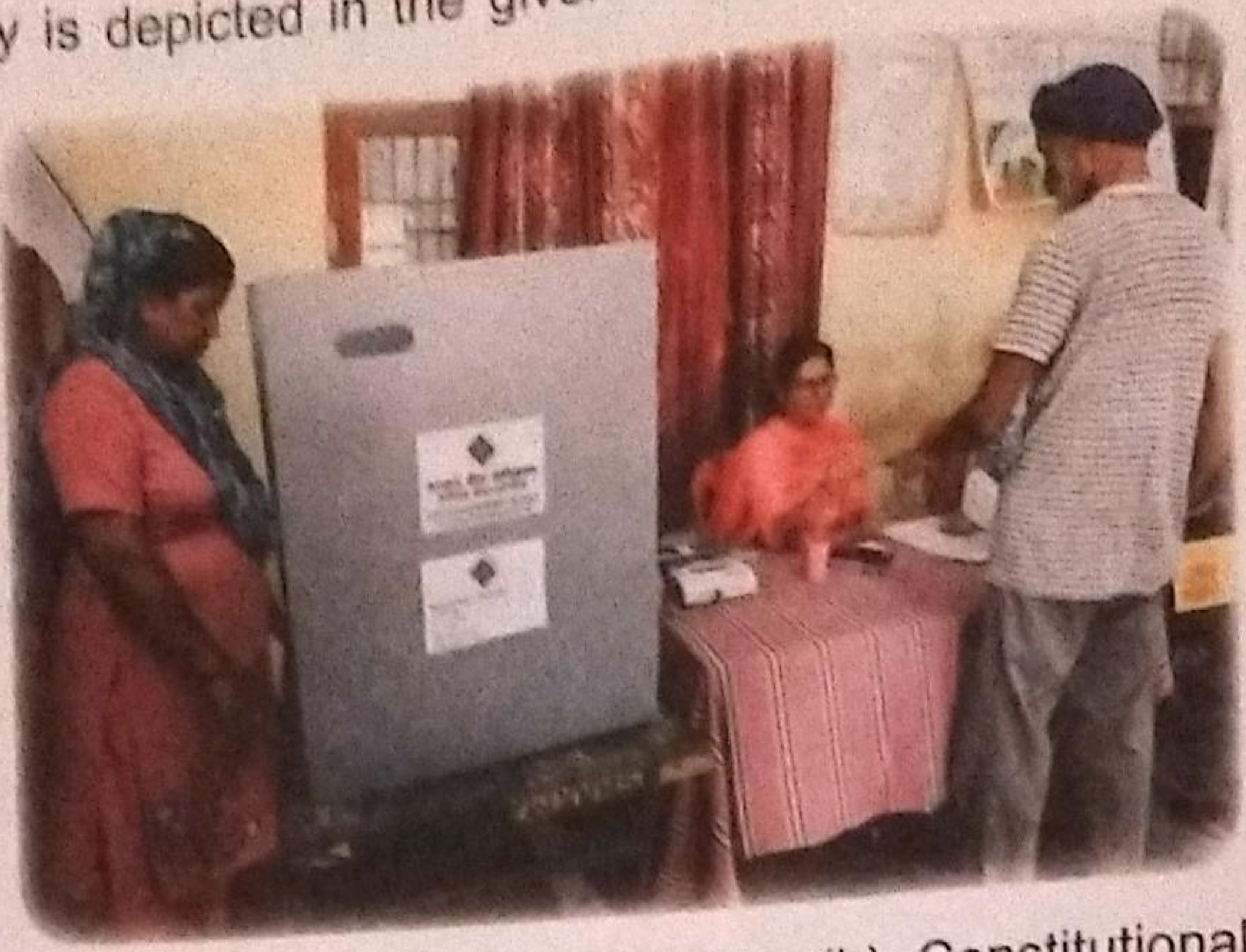
Eminent	:	Famous and respected within a particular sphere.
Monarch	:	A sovereign head of state, especially a king, queen or emperor.
Dictator	:	A ruler with total power over a country, typically one who has obtained control by force.
Accountability	:	Being responsible for what you do and able to give a satisfactory reason for it.
Coercion	:	The act of forcing someone to do something they don't want to do.

Exercises

A. Multiple choice questions (MCQs).

1. The word 'Democracy' is derived from the Greek word:
   (a) Democracia (b) Demokratia
   (c) Demos (d) Kratia
2. Who defined democracy as "the government of the people, by the people, for the people"?
   (a) George Washington (b) Winston Churchill
   (c) Abraham Lincoln (d) Reinhold Niebuhr
3. In a democracy, the final decision-making power must rest with:
   (a) The military chief (b) Religious leaders
   (c) Elected representatives (d) The judiciary alone
4. In a parliamentary system, the real executive head of the government is the:
   (a) President (b) Monarch
   (c) Prime Minister (d) Chief Justice
5. Which of the following is a major challenge faced by democracy?
   (a) Equal distribution of wealth (b) Decreasing voter turnout
   (c) Growing economic inequality (d) Absence of elections

6. Which type of democracy is depicted in the given image?



(a) Direct
(b) Constitutional
(c) Monarchical
(d) Representative

7. Which of the following statements is correct regarding democracy?
(a) It protects only the majority community.
(b) It allows exploitation of weaker sections.
(c) It protects the interests of both majority and minority.
(d) It eliminates all economic inequality.

8. Consider the given statement and choose the correct option.

Statement I: Direct democracy is difficult to practise in large countries.

Statement II: In a representative democracy, the final decision-making power rests with elected representatives.

(a) Statement I is correct and Statement II is incorrect.
(b) Statement I is incorrect and Statement II is correct.
(c) Both statements are correct.
(d) Both statements are incorrect.

9. Match the following columns and choose the correct option:

Column I	Column II
A. Democracy	1. Citizens participate directly in decision-making
B. Rule of Law	2. People elect their rulers
C. Representative Democracy	3. Rule by the people
D. Direct Democracy	4. Equality before the law

Options:

(a) A-3, B-4, C-2, D-1
(b) A-2, B-4, C-3, D-1
(c) A-1, B-4, C-2, D-3
(d) A-4, B-3, C-2, D-1

10. Identify the incorrect statement about democracy.
(a) It eliminates all economic inequality immediately.
(b) It protects minority rights.
(c) It ensures free and fair elections.
(d) It allows citizens to criticise the government.

11. In a village, all adult citizens gather to discuss and decide on local development projects directly, witho electing representatives.

This is an example of:

(a) Representative democracy
(b) Military rule
(c) Direct democracy
(d) Parliamentary system

12. In a country, the President is elected directly by the people and does not depend on the legislature to remain in office.

This system is known as:

(a) Parliamentary democracy
(b) Presidential democracy
(c) Absolute monarchy
(d) Coalition government

B. Fill in the blanks.

1. In a ____________ democracy, citizens elect representatives to make decisions on their behalf.
2. In a democracy, rulers are chosen through free and fair ____________.
3. The idea of the brotherhood of mankind, expressed through the principle of ____________.
4. The presidential form of government is based on the principle of separation of powers between the executive and the ____________.

C. Very short answer type questions.

1. What does the principle of *Vasudhaiva Kutumbakam* convey?
2. Why is regular election considered essential in a democracy?
3. How does political equality strengthen democracy?
4. Voter apathy is considered a challenge to democracy. Give a reason.
5. Differentiate between absolute monarchy and dictatorship.

D. Short answer type questions.

1. Define democracy. Mention any two essential features of a democratic government.
2. Distinguish between a parliamentary system and a presidential system.
3. State any two merits of democracy over other forms of government.
4. Explain the significance of regular elections in maintaining democratic values.
5. How does democracy accommodate social diversity? **(HOTS)**

E. Long answer type questions.

1. "Democracy is considered better than other forms of government." Justify the statement.
2. Trace the roots of democracy in ancient India. Explain the role of *Sabha* and *Samiti* in Vedic era.
3. Discuss the challenges faced by modern democracies.
4. Explain the types of democracy.

F. Assertion-Reason questions.

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(c) (A) is correct but (R) is wrong
(d) (A) is wrong but (R) is correct

1. **Assertion (A):** *Sabha* and *Samiti* were important institutions in early Indian governance.
   Reason (R): They enabled participation of people in decision-making processes.
2. **Assertion (A):** Ancient Indian political systems had no elements of democracy.
   Reason (R): Institutions like Sabha and village councils existed in early India.
3. **Assertion (A):** Representative democracy is suitable for large modern states.
   Reason (R): It is difficult for all citizens to directly participate in decision-making in large populations.

G. Case-based questions.

Read the given text and answer the following questions:

India's experience with democracy dates back to **1947** when it gained independence from British colonial rule declared itself a democratic state by enforcing its constitution in **1950**. Since independence, India had an almos uninterrupted democracy, except for "the Emergency" declared by Indira Gandhi between **1975** and **1977**. Un recently, India has been considered a stable parliamentary democracy, in fact, the "largest democracy in the world". The Freedom in the World reports by Freedom House have rated India as Free for many years. Elections a Union and State levels have been held regularhly in a competitive multiparty system, albeit not without instance of vote buying and corruption. The transfers of power between governments have also been peaceful so fa

(*Source: Democratic Erosion in India: A Case Study - Democratic Erosio*

1. Explain any two features of democracy.
2. When did India declare itself democratic?
3. Which form of democracy is followed by India? State any one feature of it.

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10

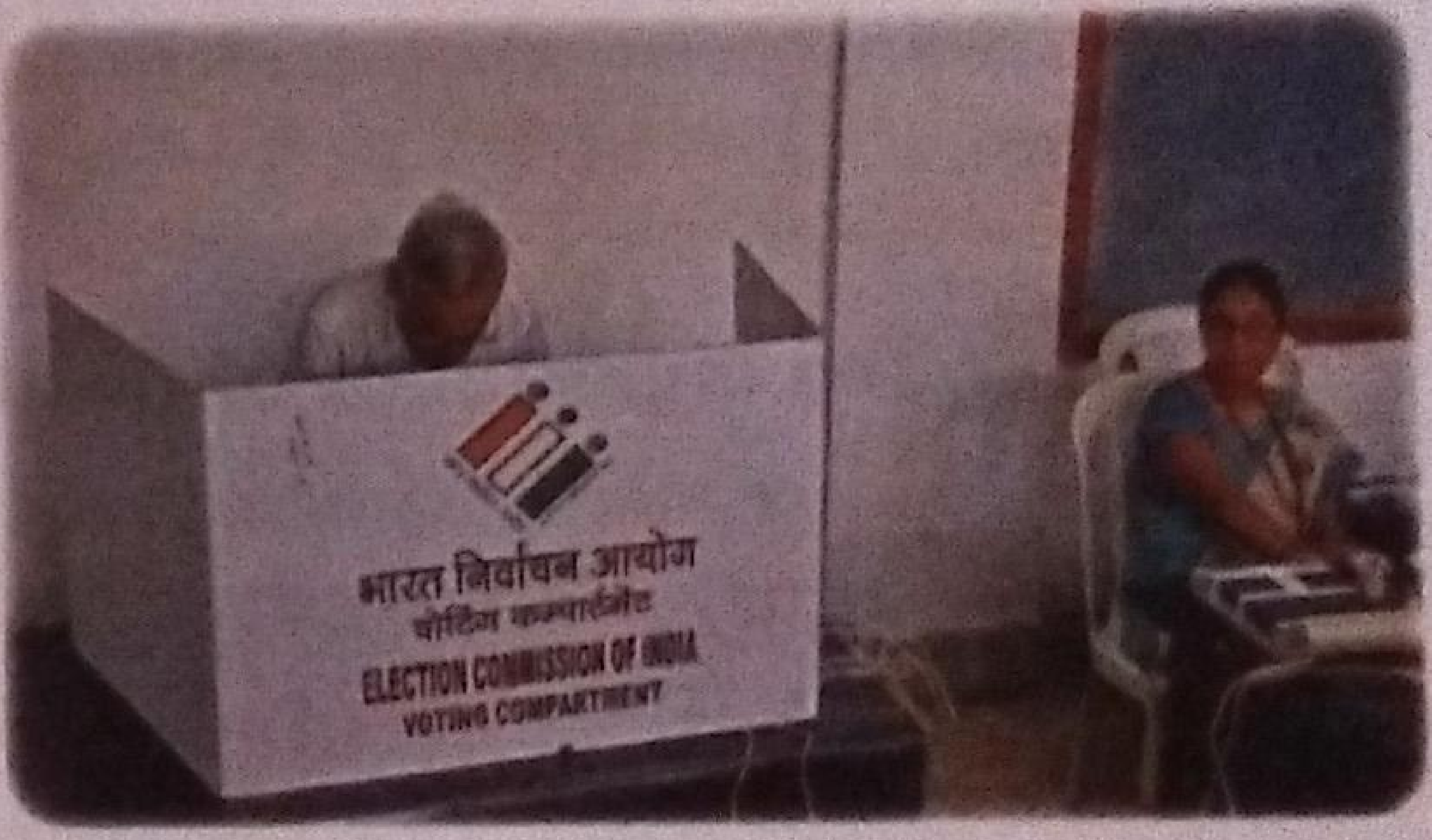
Elections in Indian Democracy

KEY CONCEPTS

- Meaning of Elections
- Election Laws
- Constituency, Electoral Rolls and Enumerators
- Electoral System
- Election Commission of India and Its Role
- Party System in India

MEANING OF ELECTIONS

Elections are a democratic process in which citizens choose their representatives by voting. Through elections, people express their will and decide who will make laws and run the government on their behalf.



People casting their votes in election.

Elections in India are not a new phenomenon born in modern times. The practice of taking decisions collectively, whether within families or at the community level, has been a part of the Indian way of life since ancient times. Consensus and participation have long guided how people manage their social and political affairs. Ancient scriptures dating back to the Vedic age contain several references to republics and democratic forms of governance that existed in different parts of India. This shows that the spirit of democracy has deep roots in Indian history.

DID YOU KNOW?

The **Uttaramerur Inscription**, issued during the reign of Parantaka Chola I (10th century CE), provides one of the earliest detailed records of a structured local self-government system in India called the Kudavolai System.

The **Kudavolai system**, meaning "ballot pot," was an early electoral method used in Chola village assemblies. Under this system, the names of eligible candidates were written on palm leaves and placed inside a pot, from which a young boy—chosen for his impartiality—would draw one name in full public view. The selected person would then assume a position in the village assembly. This randomised draw was not a game of chance but a civic ritual rooted in transparency, fairness, and collective consent. To prevent power from being monopolised by dynastic elites, the system followed strict eligibility rules.

In a democracy, power does not belong to a king or a small group of people. It belongs to the citizens. Elections are the means through which people exercise this power. By voting in elections, citizens choose their representatives and decide who will form the government. Elections make the government accountable to the people and ensure that leaders are selected through peaceful and fair competition. Thus, elections are the foundation of a democratic political system.

Engage and Reflect

1. In groups, students prepare five questions and interview five adults in their neighbourhood about:
   - Whether they vote
   - Why they do or do not vote
   - What issues matter most to them
2. **Reflect:** What encourages or discourages people from voting?

KEY LEARNINGS

- Elections are a democratic process through which citizens choose their representatives by voting.
- The idea of collective decision-making in India has existed since ancient times and is deeply rooted in Indian tradition.
- Ancient Indian texts and practices show that democratic and republican forms of governance existed in the Vedic period.
- The Kudavolai system of the Chola period is one of the earliest known examples of a formal electoral method based on fairness and transparency.
- Elections empower citizens, make governments accountable, and ensure a peaceful and lawful transfer of power.

Highlighting the Importance of Elections

India is the largest practising democracy in the world. It has become a role model for other democrati countries. Conducting elections in India is a massive administrative exercise. India has over 900 millio registered voters, making it one of the largest electorate in the world. The scale of Indian elections is ofte compared to conducting elections across several large countries combined.

Since our Constitution makes India a representative democracy, at all levels, all political decisions hav to be taken by the elected representatives of the people. Elections as such become an integral part of ou political system. From the Panchayats to the Union Government, all political institutions function throug elected representatives of the people. At the local level, people choose representatives to the Panchayats o Municipalities. These representatives are called Panchas or Councillors. At the national level, people ele Members of Parliament, known as MPs.

There is no other widely accepted democratic way of selecting representatives except through elections an voting. That is the only way to make sure that the government represents the will, the choice of the people. One could choose representatives based on education, wisdom, honesty, and experience, but this would b selection. They may not represent the will of the people. The most effective way to ensure true representatio is through elections. In an election, voters can choose:

- The party that would make policies and guide the government in law-making.
- They will choose the people who will make laws for them.
- They will choose the people who will sit in the government and make major decisions.

The choice of representatives is not made permanently; in a democratic election, people can reverse the previous decision and change the government if it fails to perform. Thus, the representatives are answerab to the people who elect them.

- Elections lead to political competition. The competition can take various forms.
- It is a competition among various political parties.
- It also involves competition among various ideologies and policies of different political parties.
- At the level of a constituency, it takes the form of competition among many candidates.
- Many times, it becomes a competition among the top leaders of various parties.
- Elections also make the people aware of the national problems. Through the manifestos of different political parties, people come to know how each party is going to deal with the national problems.

KEY LEARNINGS

- In a representative democracy, people choose their leaders at all levels through elections.
- Panchayats, Municipalities, State Assemblies, and Parliament all work with elected members.
- Elections are the only way to make sure the government reflects the people's choice.
- Elections create competition, increase awareness about issues, and make leaders answerable to the people.

Engage and Reflect

1. Design a short slogan to encourage young voters to take part in elections.
2. Visit or observe a local polling booth (if possible) or watch a video on voting in India. List any three things that ensure fairness.

ELECTORAL SYSTEM

Elections allow every adult citizen of the country to participate in the democratic process and, in many cases, in forming the government. In India, elections are held regularly at different levels. These include elections to elect members of the Lok Sabha, Rajya Sabha, State Legislative Assemblies (Vidhan Sabhas), Legislative Councils (Vidhan Parishad), the President and Vice-President of India. Elections are also held for local bodies such as municipalities, municipal corporations and Panchayati Raj institutions.

Types of Electoral System

The three major electoral systems discussed in comparative political studies are the First-Past-the -Post (FPTP) system, the Proportional Representation (PR) system, and Mixed-Member systems such as Mixed Member Proportional Representation (MMPR). However, India primarily uses FPTP and PR systems.

Three Types of Electoral Systems:

1. First-Past-the-Post
2. Proportional Representation (PR)
3. Mixed-Member Proportional Representation (MMPR)

1. **The First-Past-the-Post (FPTP) system** is also called the plurality system. In this method of voting, the candidate who receives the most votes in a constituency is declared the winner. In India, direct elections to the Lok Sabha and the State Legislative Assemblies are conducted using this system. Just like in a race, the candidate who leads others and reaches the winning post first is elected, even if they do not secure an absolute majority.

In the FPTP system, the entire country is divided into small geographical areas known as constituencies. Each constituency elects one representative, and every voter casts a vote for one candidate. The candidate who receives more votes than the other candidates is declared the winner. The winning candidate is not required to secure a majority, that is, 50% + 1 of the total votes. Countries such as India, the United Kingdom, and Canada follow the FPTP system. Under the FPTP system, a political party may win a larger share of seats in the legislature than its overall percentage of votes.

2. **Proportional Representation (PR)** is an electoral system used to elect a country's government in which political parties are allotted seats according to the number of votes they receive. In this system, the various groups or divisions within the electorate are represented in the legislature in proportion to their level of support. This means that if a political party secures a certain percentage of the total votes cast, it will receive approximately the same percentage of the seats in the elected body.

   The fundamental principle of proportional representation is that every vote contributes to the final result, rather than only determining which party gains a simple plurality or bare majority. As a result, PR aims to ensure fair and balanced representation of different political viewpoints. The most widely used forms of proportional representation include the **party-list system**, the **Single Transferable Vote (STV)**, and the **Mixed-Member Proportional (MMP) system**.

   India follows the Proportional Representation (PR) system with the Single Transferable Vote (STV) method for certain indirect elections. This system is used for the election of members to the **Rajya Sabha** (the Upper House of Parliament) as well as for the offices of the **President** and **Vice-President** of India.

   Unlike the Lok Sabha, whose members are elected directly by the people, members of the Rajya Sabha are elected indirectly by the elected members of the State Legislative Assemblies (Vidhan Sabhas). The number of Rajya Sabha members from each state is roughly proportional to the population of that state.

   Under the STV system, voters (such as MLAs or Members of Parliament, depending on the election) cast one vote but rank candidates in order of preference — first preference, second preference, and so on. To be elected, a candidate must secure a fixed number of votes called a **quota**. If a candidate receives more votes than the quota, the surplus votes are transferred to other candidates based on the next preferences marked on the ballot. Similarly, if a candidate receives too few votes and is eliminated, their votes are transferred according to the voters' next preferences.

   This method reduces the wastage of votes and ensures that representation more closely reflects the relative strength of political groups or the federal balance of the country. It also allows voters to indicate multiple preferences, making the system more representative and inclusive.

3. A third type of electoral system, often discussed in academic and reform debates, is the **Mixed Member system**. This system combines features of both the First-Past-the-Post (FPTP) and Proportional Representation (PR) systems. Under **Mixed-Member Proportional Representation (MMPR)**, some representatives are elected from single-member constituencies using FPTP, while additional seats are allocated to political parties to ensure that the total number of seats they hold reflects their overall share of the votes. This system is used in several countries, but Germany and New Zealand are key examples.

Comparison Table for First- Past- the- Post and Proportional Representation (PR with STV)

Feature	First-Past-the-Post (FPTP)	Proportional Representation (PR with STV)
Type of Election	Direct elections	Indirect elections
Used For in India	Lok Sabha and State Legislative Assemblies	Rajya Sabha, President, Vice-President
Constituencies	Single-member constituencies	Multi-member constituencies
Voting Method	Voter votes for one candidate	Voter ranks candidates in order of preference
Winner Decided By	Candidate with the highest votes wins	Candidates elected based on quota and preferences
Majority Required	Not required (no need for 50%+1)	Based on achieving a quota
Wastage of Votes	High (votes for losing candidates are wasted)	Low (preferences are transferred)
Representation	May not reflect the vote share accurately	Reflects the strength of parties more fairly
Example Countries	India, UK, Canada	India (for Rajya Sabha & President), Ireland

Engage and Reflect

Ask students to find out how their local MLA or MP was elected. Identify whether it was through FPTP or PR and reflect on how their votes matter.

KEY LEARNINGS

- Elections enable every adult citizen to participate in the democratic process and, in many cases, in forming the government.
- India mainly uses the FPTP system for direct elections and Proportional Representation through the Single Transferable Vote (STV) method for certain indirect elections.
- In FPTP, the candidate with the highest number of votes wins even without an absolute majority.
- PR with STV reduces wastage of votes and ensures fairer representation of parties.
- Mixed-Member systems combine local representation with proportional fairness.

ELECTION LAWS

Since 1950, several laws have been enacted in India to regulate the conduct and functioning of elections. To regulate the electoral process in the country, the following important laws have been passed:

- The Representation of the People Act, 1950
- The Representation of the People Act, 1951
- The Delimitation Act, 2002

The Representation of the People Act, 1950

The Representation of the People Act, 1950: Articles 81 and 170 of the Constitution of India prescribe the maximum number of seats in Parliament and in the Legislative Assemblies of the States. They also lay down certain principles for the allocation of seats in the House of the People among the States and in the State Legislative Assemblies. However, the actual allocation of these seats is to be determined by law.

Similarly, Article 171 of the Constitution lays down the maximum and minimum number of seats in a State Legislative Council and specifies the different methods by which these seats are to be filled. The exact number of seats to be filled through each method is left to be decided by law.

Therefore, the Representation of the People Act, 1950, was enacted to provide for the allocation of seats in the House of the People and in the Legislative Assemblies and Legislative Councils of the States.

The Act makes the following provisions relating to elections:

- The Act provides for the allocation of seats in the Lok Sabha and, in the State Legislative Assemblies and the State Legislative Councils.
- It deals with the preparation and maintenance of electoral rolls for Parliamentary, Assembly, and Council constituencies.
- It specifies the manner of filling seats in the Council of States (Rajya Sabha) by representatives of Union Territories.
- It defines local authorities for the purpose of elections to the State Legislative Councils.

Representation of the People Act, 1951

The Representation of the People Act, 1951, did not include all provisions relating to elections. It mainly dealt with the allocation of seats and the delimitation of constituencies for elections to the House of the People and the State Legislatures, the qualifications of voters at such elections, and the preparation of electoral rolls.

The Representation of the People Act, 1951, provides detailed provisions for the actual conduct of elections to Parliament and State Legislatures.

The Act includes provisions relating to the following electoral matters:

- Qualifications and disqualifications for membership of Parliament and State Legislatures
- Issue of notifications for general elections
- Establishment of the administrative machinery for conducting elections
- Registration of political parties
- Conduct of elections
- Free supply of certain materials to candidates of recognised political parties
- Disputes regarding elections
- Corrupt practices and electoral offences
- Powers of the Election Commission regarding inquiries into the disqualification of members
- Re-elections and the time limit for filling vacancies
- Miscellaneous provisions connected with elections

Delimitation Commission

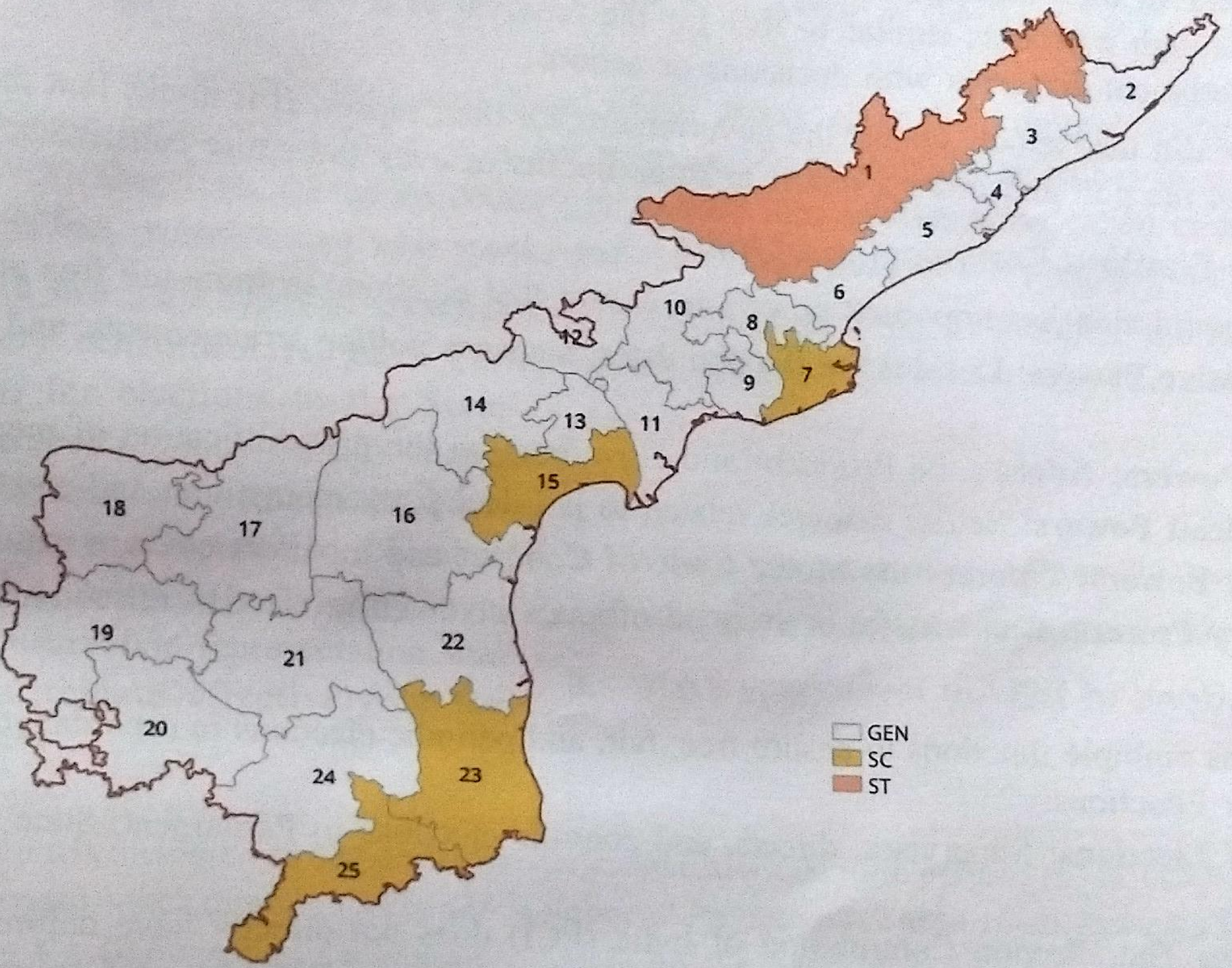
Delimitation means fixing or redrawing the boundaries of territorial constituencies in a country or a state that has a legislature. This work is done by an independent body called the Delimitation Commission.

In India, Delimitation Commissions have been set up four times — in 1952, 1963, 1973, and 2002 under different Delimitation Acts.

The Delimitation Commission in India is a high-power body whose orders have the force of law and cannot be called in question before any court. These decisions come into effect on a date decided by the President of India. The copies of its orders are placed before the Lok Sabha (House of the People) and the concerned State Legislative Assemblies, but they cannot change or modify these orders.

What is the Significance of Delimitation?

- Delimitation ensures fair representation in the Lok Sabha and State Legislative Assemblies by redrawing constituency boundaries based on population changes.
- Redraws constituency boundaries to ensure a more equal distribution of the population across constituencies and to prevent over-representation or under-representation of any region.
- Determines the constituencies to be reserved for Scheduled Castes (SCs) and Scheduled Tribes (STs) to ensure their political representation.



This map shows 25 Lok Sabha (parliamentary) constituencies in the state of Andhra Pradesh.

Engage and Reflect

1. Find out the map that shows the Lok Sabha (Parliamentary) constituencies of your respective state.
2. Talk to elders and ask about voting and find out which constituency they belong to.

KEY LEARNINGS

- India regulates elections through important laws such as the Representation of the People Acts (1950 and 1951) and the Delimitation Act, 2002.
- The Representation of the People Act, 1950, deals mainly with the allocation of seats, delimitation of constituencies, and preparation of electoral rolls.
- The Representation of the People Act, 1951, provides for the conduct of elections, qualifications and disqualifications of members, registration of political parties, and settlement of election disputes.
- The Delimitation Commission redraws constituency boundaries based on population changes, and its decisions have the force of law.

ELECTION COMMISSION OF INDIA AND ITS ROLE

The Election Commission of India is an independent constitutional body that conducts elections in India. It was set up on 25 January 1950. Operating under Article 324 of the Constitution, it is a three-member body headquartered in New Delhi. The President appoints the Chief Election Commissioner and Election Commissioners. They have a tenure of six years, or up to the age of 65 years, whichever is earlier.

The Election Commission of India enjoys a high degree of independence, similar to that of the judiciary. Though the President appoints the Chief Election Commissioner (CEC), he is not answerable to the President or the government in the discharge of the constitutional duties. The Chief Election Commissioner can be removed only through a process similar to that for the removal of a Supreme Court judge, and not merely because the government disagrees with decisions or actions.

The Commission can take action against the governments for their lapses. If it thinks that the polling was not fair, it can cancel the poll and order a repoll in some booths or even the entire constituency.

Powers of the Election Commission of India

The Election Commission has important powers to ensure that elections in India are free and fair.

- **Administrative Powers:** Decides the election dates, manages polling arrangements, and appoints election staff.
- **Advisory Powers:** Advises the President and Governors on the disqualification of members.
- **Quasi-Judicial Powers:** Settles disputes related to political party recognition and election symbols.
- **Regulatory Powers:** Enforces the Model Code of Conduct and monitors election expenses.
- **Disciplinary Powers:** Can transfer or suspend officials involved in election misconduct.

Role and Functions of ECI

The ECI performs multiple functions to ensure free, fair, and periodic elections in accordance with democratic principles. Major Functions:

- **Conduct of Elections:** Supervises, directs, and controls elections to Parliament, State Legislatures, and high offices.
- **Delimitation:** The Election Commission of India (ECI) does not directly have delimitation powers. I oversees the process, which is conducted by a separate, temporary Delimitation Commission established by the Central Government.

ELECTION COMMISSION OF INDIA

Headquarter of ECI is in New Delhi

- **Electoral Rolls:** Prepares, revises, and updates voter lists through continuous revision and SIR (Special Intensive Revision).
- **Registration of Political Parties:** Recognises parties and allots election symbols.
- **Voter Education:** Promotes awareness under the Systematic Voters' Education and Electoral Participation (SVEEP) programme.
- **Monitoring Expenditure:** Ensures transparency through election expenditure audits and monitoring teams.

CONSTITUENCY, ELECTORAL ROLL AND ENUMERATOR

Constituency

A constituency is a fixed geographical area from which voters elect their representative to a legislative body. In a democratic country like India, it is not possible for all citizens to gather in one place to elect their representatives. Therefore, the entire country is divided into smaller areas called constituencies. Each constituency elects one representative who speaks and works on behalf of the people living in that area.

In India, there are two main types of constituencies. For elections to the Lok Sabha, the country is divided into Parliamentary constituencies. Each Parliamentary constituency elects one Member of Parliament (MP). Similarly, for elections to the State Legislative Assembly (Vidhan Sabha), states are divided into Assembly constituencies. Each Assembly constituency elects one Member of the Legislative Assembly (MLA). Thus, constituencies ensure fair representation and help people participate effectively in the democratic process.

Engage and Reflect

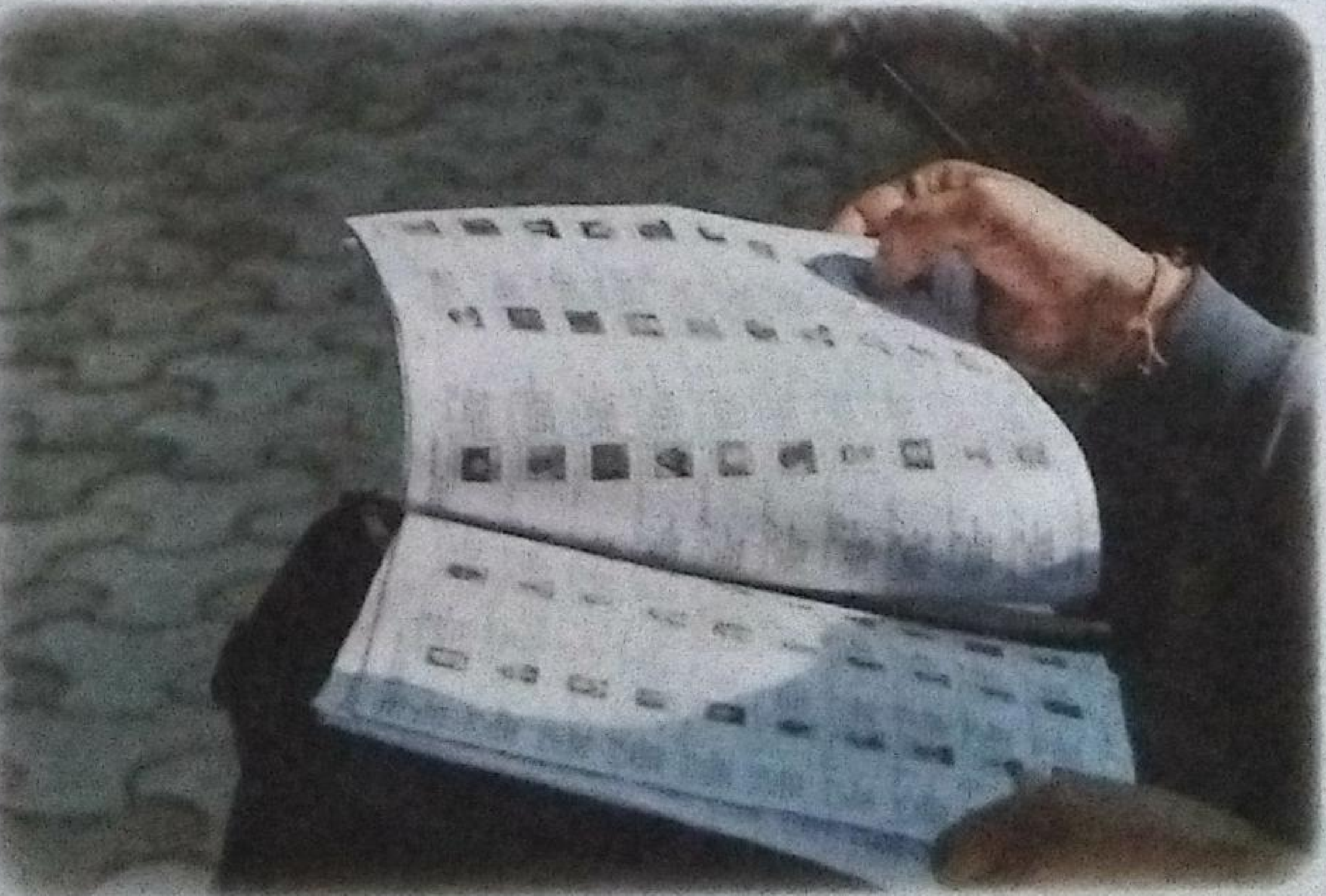
1. What is the name of your Assembly Constituency?
2. What is the name of your Parliamentary Constituency?
3. Who is your current MLA and MP?

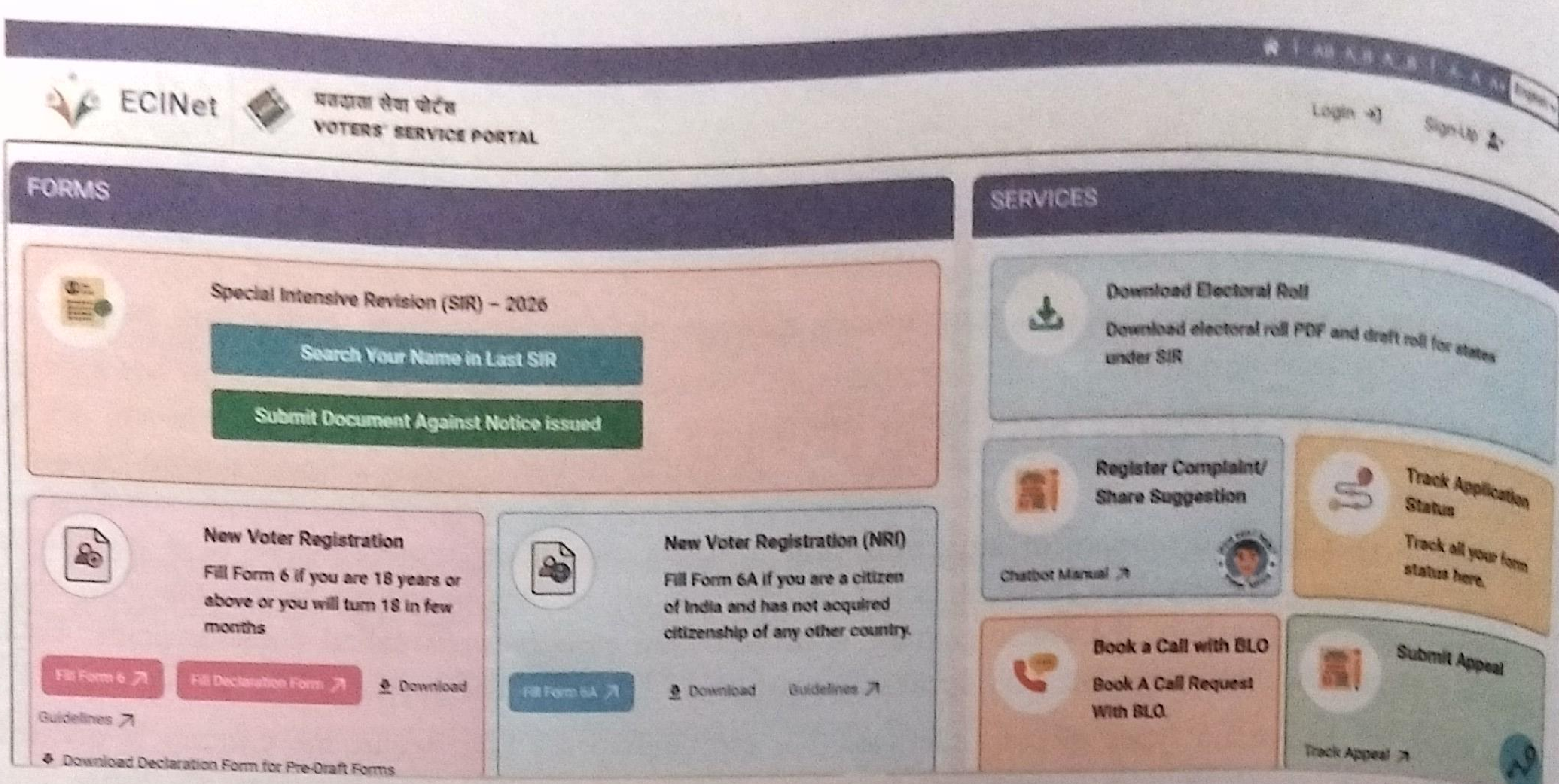
DID YOU KNOW? India is divided into 543 parliamentary constituencies for elections to the Lok Sabha, and each constituency directly elects one Member of Parliament. These constituencies are demarcated by the Delimitation Commission mainly on the basis of population—using the 1971 Census figures for allocation among states and the 2011 Census for fixing boundaries. Out of the total seats, 84 are reserved for Scheduled Castes (SC) and 47 for Scheduled Tribes (ST). The delimitation process aims to ensure that each constituency has a nearly equal population for fair representation.

Electoral Roll

An electoral roll, also known as the voters' list, is an official list of all eligible citizens who are registered to vote in a particular constituency. Only those whose names appear on this list are allowed to cast their vote during elections.

In India, the preparation and updating of electoral rolls is carried out under the supervision of the Election Commission of India (ECI).


Verifying names in the electoral roll.


ECINet
मतदाता सेवा पोर्टल
VOTERS' SERVICE PORTAL
Login
Sign-Up
FORMS
SERVICES
Search Your Name in Last SIR
Submit Document Against Notice issued
Fill Form 6
Fill Declaration Form
Download
Guidelines
Fill Form 6A
Download
Guidelines
Download Declaration Form for Pre-Draft Forms
Chatbot Manual
Track Appeal

Special Intensive Revision (SIR) – 2026

New Voter Registration

Fill Form 6 if you are 18 years or above or you will turn 18 in few months

New Voter Registration (NRI)

Fill Form 6A if you are a citizen of India and has not acquired citizenship of any other country.

Download Electoral Roll

Download electoral roll PDF and draft roll for states under SIR

Register Complaint/ Share Suggestion

Track Application Status

Track all your form status here.

Book a Call with BLO

Book A Call Request With BLO.

Submit Appeal

ECINet Voters' Service Portal.

Key Features of an Electoral Roll

- **Universal Inclusion:** Every Indian citizen who is 18 years or above and is ordinarily resident in a constituency can register.
- **No Discrimination:** No exclusion on the basis of religion, caste, gender, or race.
- **Constituency-wise List:** Each constituency has its own separate electoral roll.
- **Regular Updating:** The roll is revised annually and also updated before elections to include new voters and remove the names of deceased or shifted persons.
- **Photo Electoral Roll:** Most electoral rolls include photographs for better identification.

Why is the Electoral Roll Important?

- It ensures **free and fair elections**.
- It prevents **bogus voting and duplication**.
- It protects the principle of **political equality**.
- It ensures that only eligible citizens participate in the democratic process.

Process of Enrolment

Citizens can apply for inclusion in the electoral roll through:

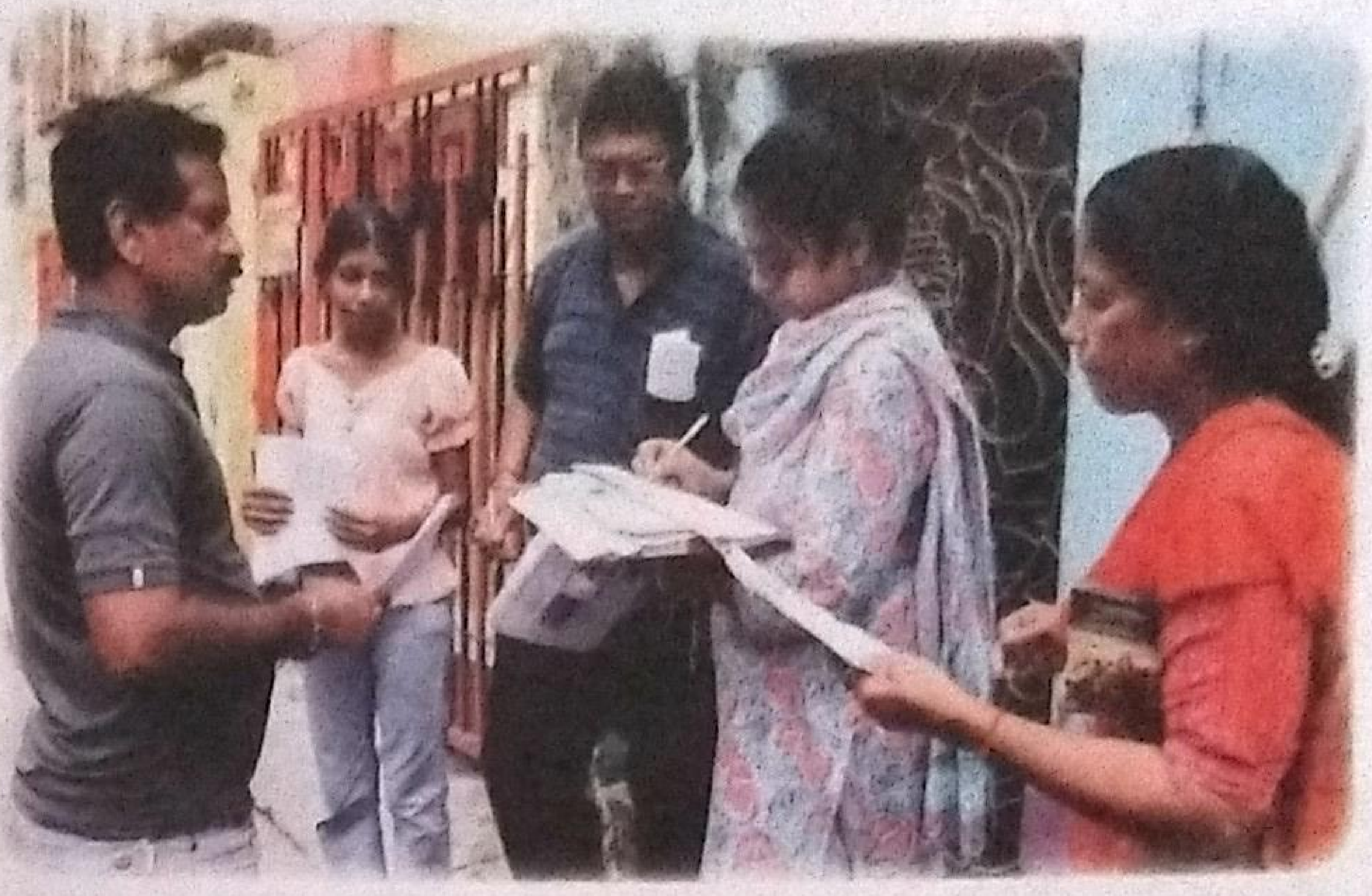
- **Online:** Use the **Voters' Service Portal** (voters.eci.gov.in) or the **Voter Helpline App**.
- **Offline:** Submit **Form 6** to your local **Booth Level Officer (BLO)** or Electoral Registration Officer (ERO).

Key Steps

1. **Submission:** Fill out **Form 6** (for new voters or those who have shifted).
2. **Verification:** A Booth Level Officer (BLO) conducts a field visit to confirm your residence.
3. **Approval:** Once verified, your name is added to the official list.
4. **ID Issuance:** You receive a physical Elector's Photo Identity Card (Voter ID).

Enumerator—Meaning and Role

An **enumerator** is a trained person who collects, verifies, and records information directly from people during surveys, censuses, or field investigations. They usually work on a temporary or contract basis for government, research, or private organisations. Enumerators visit households or businesses and use questionnaires or digital devices to gather accurate data.



An enumerator on duty

Role of an Enumerator (Election Context)

Enumerator Appointed by Election Authorities

↓

Receives Training and Guidelines

↓

Visits Households (Door-to-Door Survey)

↓

Collects Details (Name, Age, Address, Eligibility)

↓

Verifies Information with Documents

↓

Records Data in Forms/Digital Devices

↓

Submits Verified Data to Election Office

↓

Helps in Updating the Electoral Roll

The enumerator plays a vital role in ensuring that the electoral roll is accurate and up to date. This strengthens the work of the Election Commission of India and supports free and fair elections in a democracy.

Engage and Reflect

1. What problems might an enumerator face during door-to-door verification? Suggest solutions.
2. Visit the official website of the Election Commission of India and explore how citizens can check their names in the electoral roll. What did you learn from this activity?
3. Create a vibrant and creative poster highlighting the importance of voting. "My Vote, My Future — Democracy Begins with Me."

KEY LEARNINGS

- A constituency is a geographical area from which voters elect their representative to Parliament or a State Legislature. Each constituency has its own separate voters' list.
- An electoral roll is the official list of eligible voters in a particular constituency. Only those whose names appear on the roll can cast their vote.
- The electoral roll is based on the principle of Universal Adult Franchise, allowing every citizen aged 18 years and above to register without discrimination.
- An enumerator is a trained person appointed during surveys or electoral roll revision to collect and verify the details of eligible voters through door-to-door visits.

PARTY SYSTEM IN INDIA

A political party is an organised group of people who share similar political ideas and aim to form the government through elections. Political parties present policies and programmes to the people and seek their support. In India, political parties are recognised and regulated by the Election Commission of India.

The contemporary party system in India originally evolved in the context of the freedom struggle. The purpose of political parties changed after Independence. Before Independence, political parties were part of the national movement, with the primary aim of achieving freedom. After Independence, their objective shifted towards gaining power and forming the government. For this reason, they began to compete with one another. Consequently, the party system in India transformed from the dominance of a single party to the emergence of multiple parties.

Although India follows a multi-party framework, it has passed through several phases. For instance, during the first two decades after Independence, the country experienced the dominance of one party within a broader multiparty framework. The idea of a multi-party system and coalition governments at the Centre became prominent after 1989.

Political parties and the party system in India have been deeply influenced by cultural diversity; social, ethnic, caste, community, and religious pluralism; the traditions of the nationalist movement; differing styles of party leadership; and conflicting ideological perspectives. The Indian Constitution has established a parliamentary form of government at both the Centre and State levels. Members of the Lok Sabha and Vidhan Sabha are elected by the citizens of the country. Therefore, the political parties that contest elections become an integral part of the political system (party system). The party system serves as a vital link between the people and the government.

Types of Party System

There are mainly three categories of the party system:

One-Party System: Only one political party is legally allowed to hold power and form the government. This system is typically found in authoritarian regimes. **Examples:** China, North Korea, Cuba.

Two-Party System: Two major political parties dominate the political landscape. Although other parties may exist, only two have a realistic chance of forming a majority government. **Examples:** The United States (Democrats/Republicans), the United Kingdom (Conservatives/Labour).

Multi-Party System: More than two political parties have the potential to gain control of the government, often leading to coalition governments. **Examples:** India, France, Israel.

DID YOU KNOW? A Dominant-Party System exists when multiple political parties function within the system, but one party consistently wins elections and remains in power for long periods, making its defeat unlikely in the near future. Key examples include the African National Congress (ANC) in South Africa, the Liberal Democratic Party (LDP) in Japan, and the Indian National Congress in India's post-independence era.

India follows a **Multi-Party System**. Several political parties contest elections at the national and state levels. Because of the presence of many parties, sometimes no single party wins a clear majority in the legislature. In such cases, two or more parties may come together to form a **coalition government**. In simple words, it is like a team of parties working together to run the country or the state.

Features of a Coalition Government

The main features of a coalition government are:

- **Multi-party composition:** Formed by two or more political parties when no single party secures a majority.
- **Common Minimum Programme (CMP):** Coalition partners agree on a shared policy agenda to govern effectively.
- **Power sharing:** Cabinet positions and responsibilities are allocated among the coalition partners.
- **Consensus-based decision-making:** Major policies require consultation and mutual agreement among the allies.
- **Flexible political arrangements:** Alliances may shift depending on political support and changing interests.
- **Limited stability:** The survival of the government depends on the continued support of coalition partners.
- **Checks on dominance:** It prevents the concentration of power in a single party, thereby strengthening democracy.

Engage and Reflect

1. Research Task: Find out one example of a coalition government in India after 1989.
   - Which parties were involved?
   - How long did the government last?
2. In your daily life, have you ever worked in a group where decisions were taken collectively?
   - What challenges did you face?
   - How were disagreements resolved?

Types of Political Parties in India

Political parties in India are broadly classified into:

1. **National Parties:** These parties operate across the country and fulfil conditions laid down by the Election Commission. They influence several states. The national parties are also known as All-India parties.
2. **State (Regional) Parties:** These parties operate mainly within a particular state and focus on regional issues and interests. The state parties are also known as regional parties.

Criteria for National and State Party Recognition

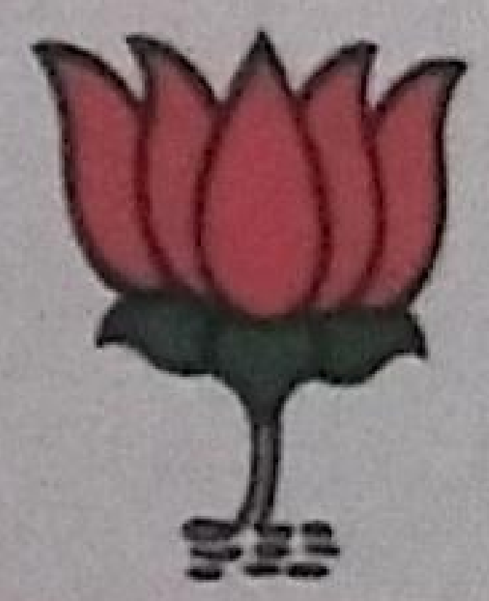
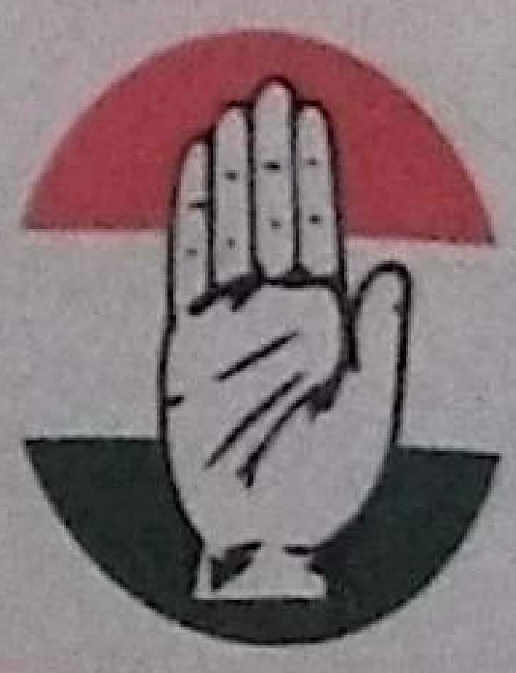
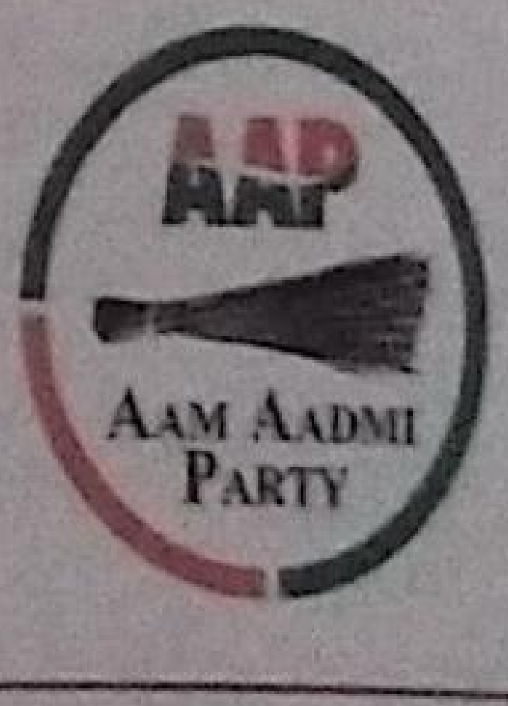
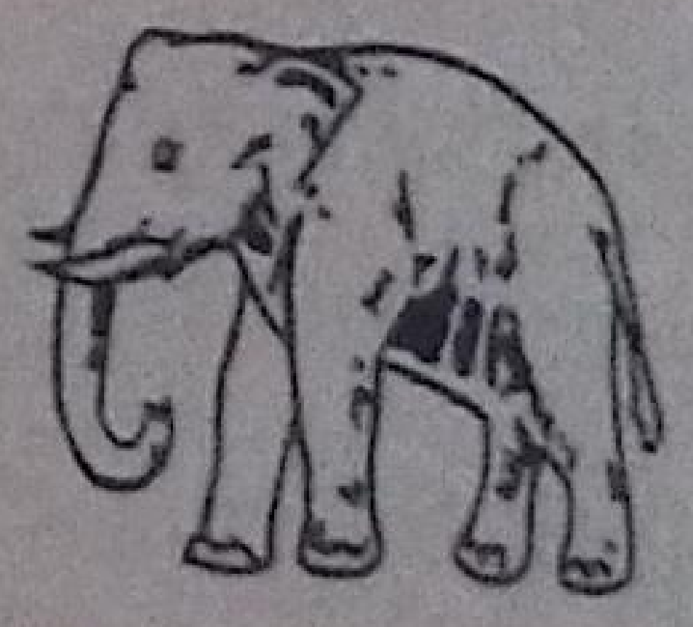
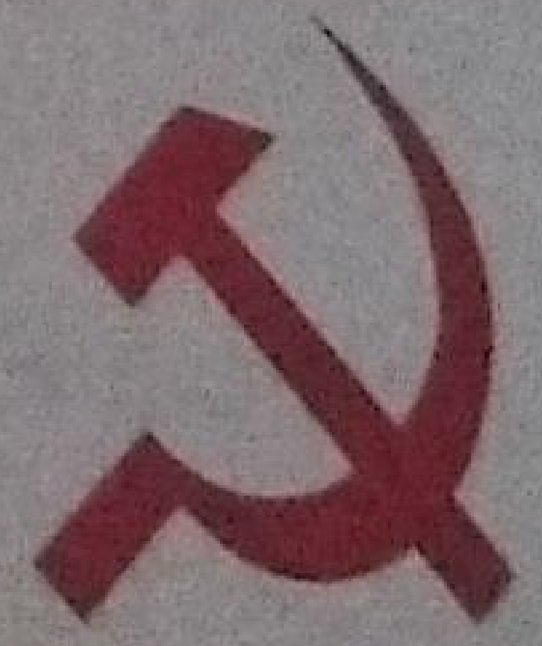
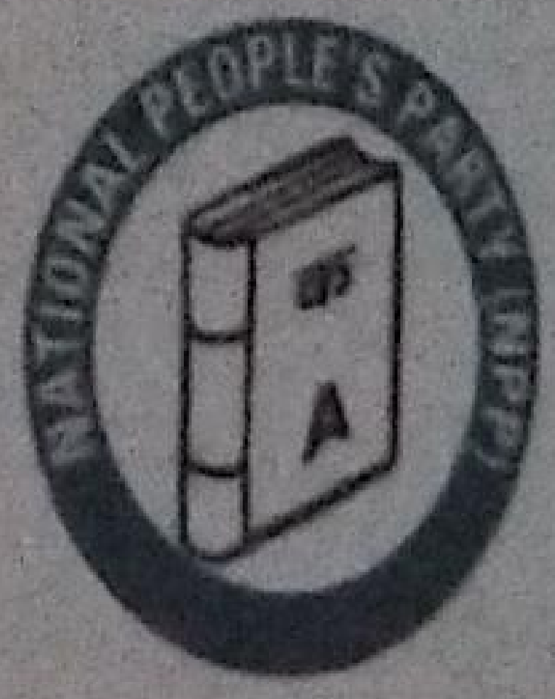
The Election Commission of India (ECI) has laid down specific criteria for a political party to be recognised as a National or State Party. A party may gain or lose this status from time to time, depending on whether it fulfils the prescribed conditions.

Criteria for Recognition as a National Party

According to the ECI's *Political Parties and Election Symbols, 2019* handbook, a political party is recognised as a National Party if it fulfils any one of the following conditions:

- It is recognised as a State Party in four or more states; **or**
- Its candidates secure at least 6% of the total valid votes in any four or more states in the latest Lok Sabha or Assembly elections, and it has at least four Members of Parliament (MPs) in the most recent Lok Sabha; **or**
- It wins at least 2% of the total seats in the Lok Sabha from not less than three states.

There are currently six recognised National Parties in India (as per the latest ECI notification). These parties have a permanent election symbol reserved for their exclusive use across the entire country.

Party Name	Abbreviation	Symbol
Bharatiya Janata Party	BJP	
Indian National Congress	INC	
Aam Aadmi Party	AAP	
Bahujan Samaj Party	BSP	
Communist Party of India (Marxist)	CPI (M)	
National People's Party	NPP	

Recognised National Parties in India

DID YOU KNOW? The All India Trinamool Congress, Nationalist Congress Party (NCP), and the Communist Party of India (CPI) lost their National Party status in 2023 following an ECI review.

Criteria for Recognition as a State Party

To be recognised as a State Party, a party must fulfil any one of the following conditions:

- at least 6% of the valid votes in the last Assembly election and have at least 2 MLAs; or have 6% of the valid votes in the last Lok Sabha elections from that state and at least one MP from that state; or
- at least 3% of the total number of seats or three seats, whichever is higher, in the last Assembly elections; or
- at least one MP for every 25 members or any fraction allotted to the state in the Lok Sabha; or
- have at least 8% of the total valid votes in the last Assembly election or Lok Sabha election from the state.

This recognition grants parties certain privileges, such as reserved election symbols, free broadcast time on state media during elections, and other electoral benefits.

Some prominent regional parties are — RJD (Bihar), SP (Uttar Pradesh), DMK (Tamil Nadu).

Engage and Reflect

1. Name your state and identify one recognised State (Regional) Party in your state. What is its symbol?
2. What does the party symbol represent? Why do you think symbols are important during elections?
3. List any five neighbouring states of your state. Identify one State (Regional) Party from each of these states, and also find out their party symbols.

KEY LEARNINGS

- A political party is a group that contests elections to form the government.
- India follows a multi-party system, where many parties compete for power.
- When no party gets a majority, parties join together to form a coalition government.
- Political parties are classified as National Parties and State (Regional) Parties.
- The Election Commission of India decides the recognition and symbols of political parties.

ANTI-DEFECTION LAW

Defection refers to switching political allegiance, particularly when a member of a political party leaves the party and joins another party or becomes independent. The **Anti-Defection Law** was introduced to prevent elected representatives from changing political parties after being elected. This law aims to ensure stability in governments and maintain discipline among political parties.

The Anti-Defection Law was added to the Constitution through the **52nd Constitutional Amendment Act, 1985.** It is included in the **Tenth Schedule** of the Constitution of India.

Key Provisions of Anti-Defection Law

1. **Disqualification:**A member of a House belonging to a political party is disqualified from being a member of the House:
    - If he voluntarily gives up the membership of that political party; or
    - If he votes or abstains from voting in the House against any direction (whip) issued by his political party without prior permission, and such action is not condoned by the party within 15 days.

2. **Independent Members:** An independent member of a House becomes disqualified if he joins any political party after the election.
3. **Nominated Members:** A nominated member of a House is disqualified if he joins any political party after six months from the date on which he takes his seat in the House.
4. **Exceptions:** Disqualification on the ground of defection does not apply in the following cases:
   (a) **Merger:** If a member leaves his party due to its merger with another party. A merger is considered valid when at least two-thirds of the members of the legislature party agree to such a merger.
   (b) **Presiding Officer:** If a member, after being elected as the Presiding Officer of the House, voluntarily gives up the membership of his party or rejoins it after ceasing to hold that office. This exception is provided to maintain the dignity and impartiality of the office.
5. **Deciding Authority:** Under the tenth Schedule of the Indian Constitution (Anti-Defection Law), if any question arises as to whether a Member of the House has become subject to disqualification, the decision is made by the Speaker (Legislative Assembly/Lok Sabha) or Chairman (Rajya Sabha/Legislative Council) of the House, subject to judicial review.
6. **Rule-Making Power:** The Presiding Officer of the House has the authority to frame rules to implement the provisions of the Tenth Schedule. According to these rules, a defection case can be taken up only when a petition is received from a member of the House.

An anti-defection law is needed in India to prevent elected representatives from switching political parties or factions frequently, which can lead to instability and a lack of accountability in government.

How Did the Anti-Defection Law Evolve?

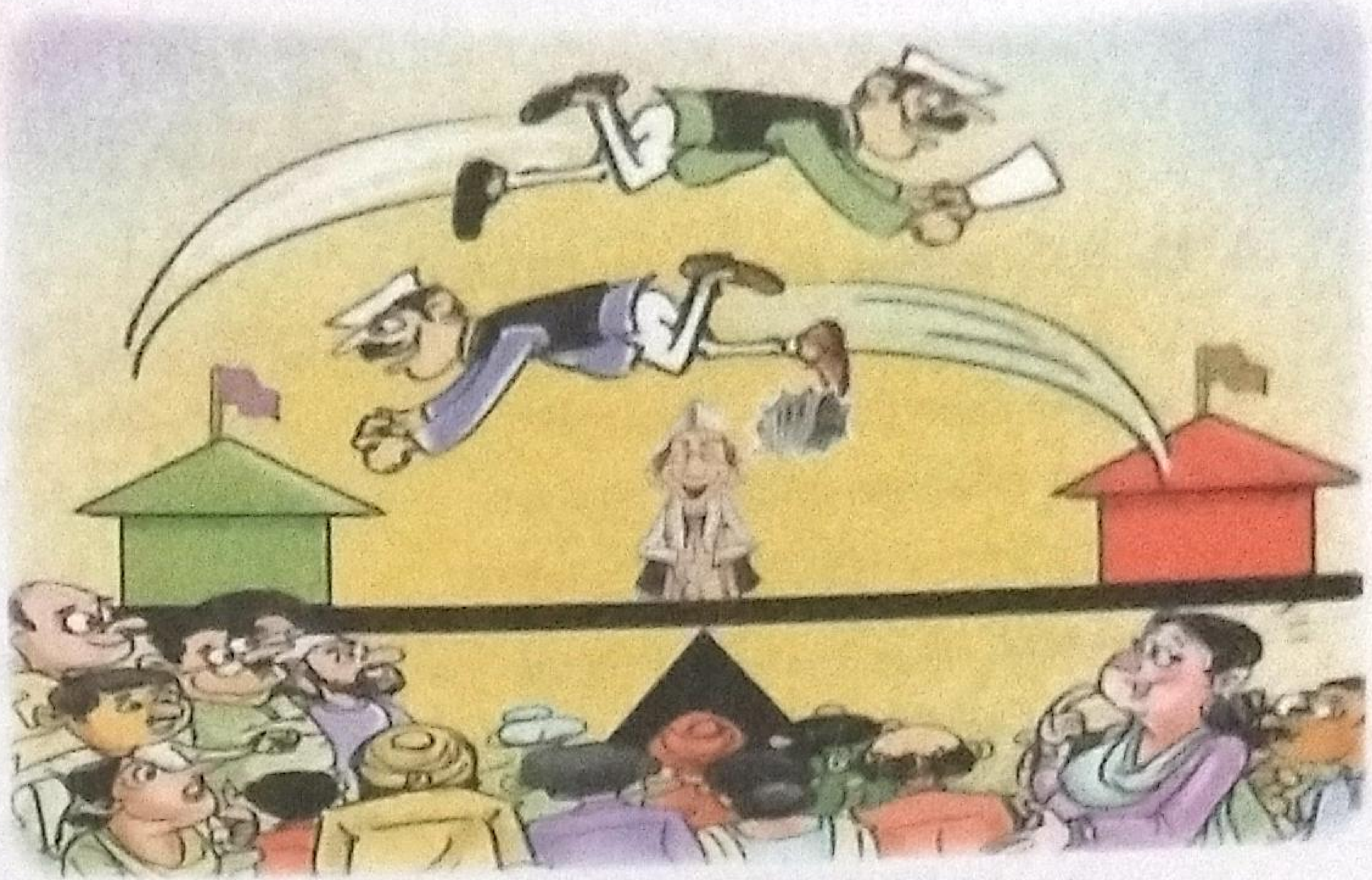
- In 1967, an MLA from Haryana, **Gaya Lal**, changed his political party three times in a single day.
- After this incident, the phrase ***'Aaya Ram, Gaya Ram'*** became popular in Indian politics.
- Party switching soon became common across many States, leading to the fall of several state governments.
- This situation raised serious concerns in the Lok Sabha, and a committee was formed under the then Home Minister Y. B. Chavan, to examine the issue.
- The **Chavan Committee** recommended that legislators who changed parties for monetary or other gains should be disqualified from Parliament and barred from contesting elections for a certain period.
- To prevent such frequent defections, the Anti-Defection Law was enacted in 1985 during the tenure of Prime Minister Rajiv Gandhi through the 52nd Constitutional Amendment, which added the Tenth Schedule to the Constitution.
- In 1992, the constitutional validity of the Tenth Schedule was challenged before the Supreme Court in the landmark case of *KihotoHollohan v. Zachillhu and Others*.
- In 2003, through the 91st Constitutional Amendment Act, the anti-defection law was strengthened.
  - It deleted the provision relating to 'split' (one-third members), which had earlier protected defectors.
  - It also stated that a member disqualified under the Tenth Schedule would not be eligible to hold any executive or ministerial office.

The Need for Anti-Defection Measures

The Anti-Defection Law was introduced to address serious problems in India's political system caused by frequent party switching. The main reasons for its need are:

- **Political Stability:** These measures prevent frequent "floor-crossing," which previously led to the collapse of multiple state governments and caused administrative instability.

- **Curbing Corruption:** By imposing penalties such as disqualification, the law seeks to curb "horse-trading," where legislators' support is influenced by money or promises of ministerial posts.
- **Upholding Voter Mandate:** Defection is often seen as a betrayal of the voters who elected a representative based on a specific party's ideology and platform.
- **Enforcing Party Discipline:** The law enables political parties to maintain cohesion by ensuring members vote in line with the party "whip" on critical issues.



A caricature highlighting the Anti-Defection Law
(*Source*: Newstrack)

- **Reducing Electoral Costs:** Stable governments reduce the likelihood of frequent and costly mid-term elections caused by the fall of ruling coalitions.

KEY LEARNINGS

- Defection happens when a member leaves their party or joins another, affecting political stability.
- The Anti-Defection Law was added in 1985 through the 52nd Constitutional Amendment Act, inserting the Tenth Schedule into the Constitution of India.
- The law prevents frequent "floor-crossing" and the collapse of governments.
- It upholds the voter's mandate and reduces corruption like "horse-trading."
- It helps political parties maintain discipline and cohesion.
- It reduces the need for costly mid-term elections caused by unstable governments.

GLOSSARY

Election	A democratic process through which citizens choose their representatives by voting.
Proportional Representation (PR)	A system in which political parties receive seats in proportion to the number of votes they secure.
Single Transferable Vote (STV)	A method under PR where voters rank candidates in order of preference, and votes are transferred based on preferences.
Constituency	A fixed geographical area from which voters elect their representative.
Universal Adult Franchise	The right of every citizen aged 18 years and above to vote without discrimination.
Delimitation	The process of fixing or redrawing constituency boundaries based on population.
Coalition	A government formed by two or more political parties when no single party gets a majority.
Defection	When an elected member leaves their political party to join another party.
Horse-Trading	The unethical practice of influencing legislators with money or promises to change party allegiance.
Whip	An official direction issued by a political party to its members regarding voting in the legislature.

Exercises

A. Multiple choice questions (MCQs).

1. A candidate wins a Lok Sabha seat by securing 35% votes, while the remaining votes are divided among other candidates. This result shows:

(a) Absolute majority system
(b) Proportional representation
(c) First-Past-the-Post system
(d) Two-round system

2. Which situation best reflects the importance of elections in a democracy?

(a) Leaders rule for life
(b) Citizens can change a non-performing government
(c) The government appoints representatives
(d) Courts decide government formation

3. In India, Rajya Sabha members are elected through:

(a) Direct voting by citizens
(b) Nomination by the Prime Minister
(c) PR with STV
(d) FPTP

4. If constituency boundaries are redrawn due to population changes, it is called:

(a) Reservation
(b) Federalism
(c) Delimitation
(d) Coalition

5. Consider the following statements about Coalition Government:Choose the correct option.

Statement I: It is formed when no party gets a majority.

Statement II: It involves power-sharing among parties.

Statement III: It ensures complete political stability.

Options:

(a) Statement I and Statement II only
(b) Statement II and Statement III only
(c) Statement I and Statement III only
(d) Only Statement I

6. Which body has the power to conduct free and fair elections in India?

(a) Parliament
(b) Election Commission of India
(c) Supreme Court
(d) Cabinet

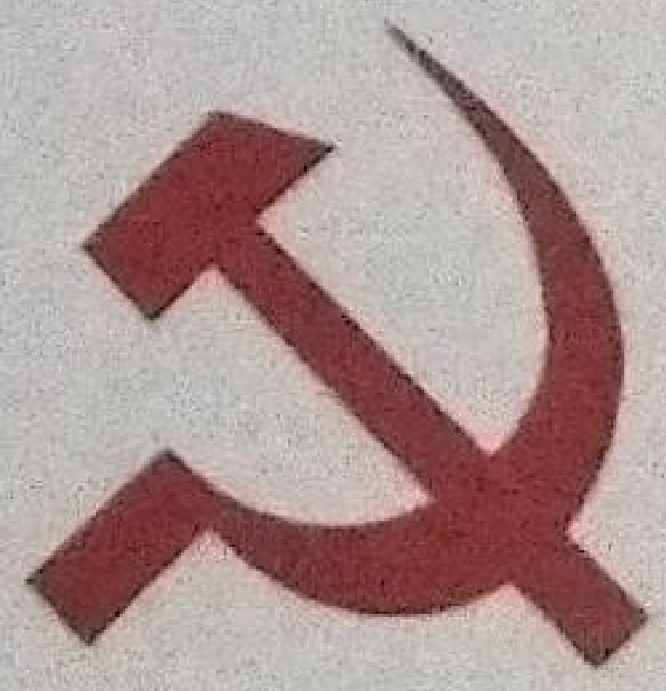
7. A government formed by two or more parties due to a lack of a majority is called:

(a) Presidential government
(b) Coalition government
(c) Federal government
(d) Caretaker government

8. If at least two-thirds of members agree to merge with another party, disqualification does NOT apply. This is:

(a) Split
(b) Coalition
(c) Exception under Anti-Defection Law
(d) PR system

9. Identify the national party based on the given symbol.



(a) Bharatiya Janata Party
(b) Indian National Congress
(c) Aam Aadmi Party
(d) Communist Party of India (Marxist)

10. India follows which type of party system?

(a) One-party system
(b) Two-party system
(c) Multi-party system
(d) No-party system

11. Consider the following statements about the FPTP system. Choose the correct option.

Statement I: The candidate with the highest votes wins.

Statement II: The winner must secure 50% + 1 votes.

Statement III: India uses FPTP for Lok Sabha elections.

Options:

(a) Statement I and Statement II are correct
(b) Statement I and Statement III are correct
(c) Statement II and Statement III are correct
(d) Only Statement II is correct

12. Match Column I with Column II

Column I	Column II
A. Delimitation	1. Power-sharing among parties
B. Electoral Roll	2. Prevents bogus voting
C. Coalition Government	3. Ensures equal representation

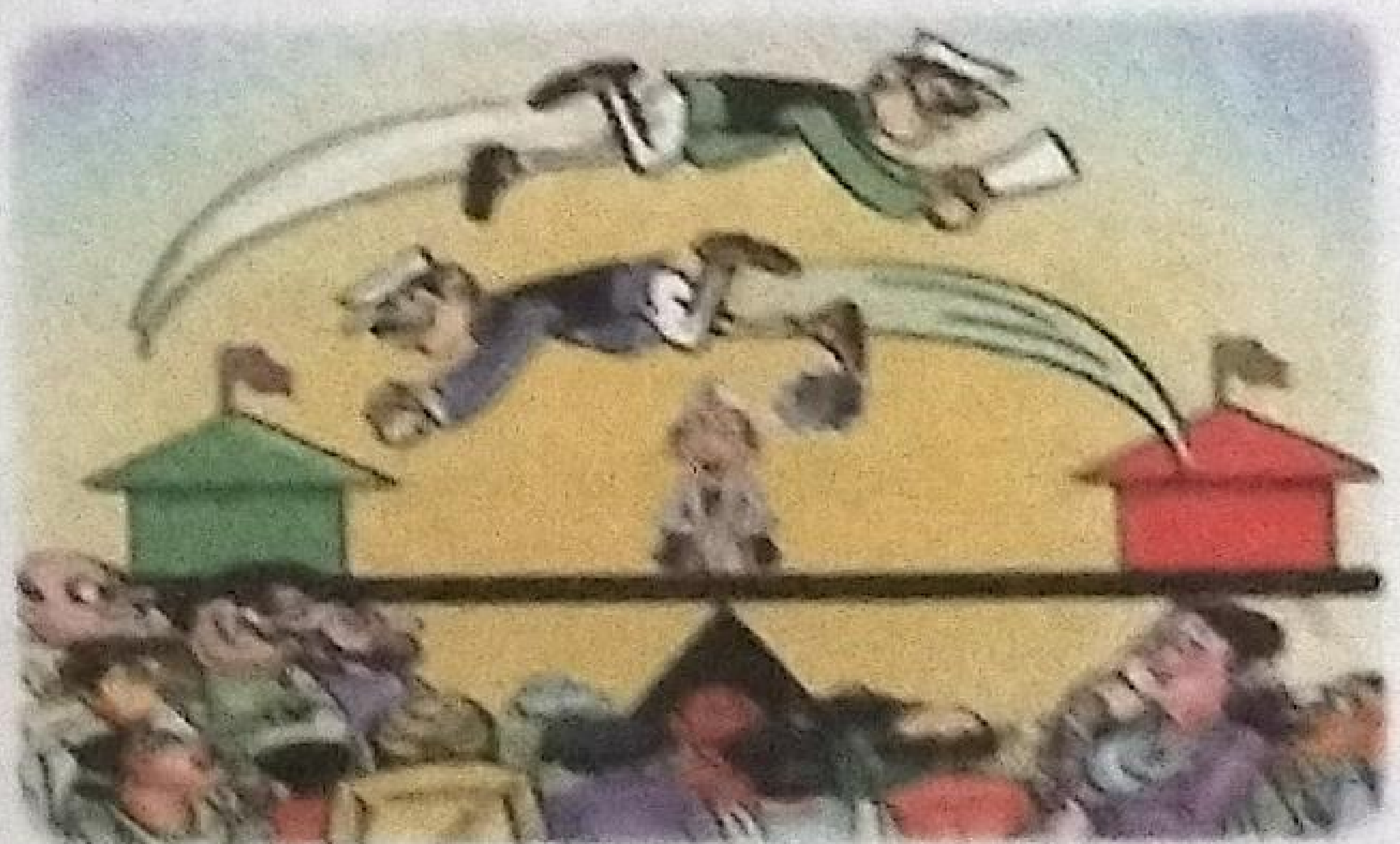
Options:

(a) A–1, B–2, C–3
(b) A–3, B–2, C–1
(c) A–3, B–1, C–2
(d) A–1, B–3, C–2

13. A political party is recognised in four different states and fulfils criteria set by the Election Commission. What status can it obtain?

(a) NationalParty
(b) Coalition Party
(c) Regional Party
(d) Independent Party

14. This picture highlights which issue?



(a) Coalition politics
(b) Delimitation
(c) Horse-trading and defection
(d) Electoral rolls

B. Fill in the blanks.

1. India follows the __________ system for direct elections to the Lok Sabha, where the candidate securing the highest number of votes wins.
2. The __________ is responsible for conducting free and fair elections in India under Article 324 of the Constitution.
3. The process of redrawing constituency boundaries based on population changes is known as __________.
4. The Anti-Defection Law is included in the __________ Schedule of the Indian Constitution.
5. A political party recognised in four or more states may qualify as a __________ Party.
6. Members of the Rajya Sabha are elected indirectly by the elected members of the __________.

C. **Match the following items given in column I with those in column II.**

Column I	Column II
A. Representation of the People Act, 1950	1. Conduct of elections
B. Representation of the People Act, 1951	2. Redrawing constituency boundaries
C. Delimitation Act, 2002	3. Allocation of seats
D. 52nd Constitutional Amendment	4. Anti-Defection Law
E. 91st Constitutional Amendment	5. Strengthened Anti-Defection provisions

D. **Very short answer type questions.**

1. What is meant by an election in a democratic country?
2. Why is delimitation necessary in a democracy?
3. If an independent MLA joins a political party after the election, what will happen?
4. How does the Anti-Defection Law promote political stability?
5. Why is the Election Commission considered an independent body?
6. Do you think coalition governments strengthen democracy? Give one reason.

E. **Short answer type questions.**

1. Explain the role of the Election Commission of India in conducting elections.
2. Discuss the significance of the electoral roll in elections.
3. What are the main provisions of the Anti-Defection Law?
4. Explain the concept of a coalition government.
5. Why was the Anti-Defection Law introduced in India?
6. If electoral rolls are not updated regularly, what consequences might arise in elections? **(HOTS)**
7. Why was the Anti-Defection Law introduced in India?

F. **Long answer type questions.**

1. Describe the powers and functions of the Election Commission of India in maintaining free and fair elections.
2. Explain the provisions of the Anti-Defection Law in India.
3. Explain the features of India's multi-party system and the role of coalition governments.
4. Explain how elections in India reflect both ancient democratic traditions and modern constitutional principles. **(HOTS)**
5. Mention the criteria for recognition of National and State Parties in India and explain their significance.

G. **Assertion-Reason questions.**

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(c) (A) is correct but (R) is wrong
(d) (A) is wrong but (R) is correct

1. **Assertion (A):** In the Fist-Past-the-Post system, a candidate can win without securing more than half of the total votes.

   Reason (R): The candidate who receives the highest number of votes is declared the winner.

2. **Assertion (A):** Members of the Rajya Sabha are directly elected by the people.

   Reason (R): Rajya Sabha elections are conducted through Proportional Representation (PR) with Single Transferable Vote (STV).

3. **Assertion (A):** The Representation of the People Act, 1950 deals with allocation of seats and preparation of electoral rolls.

   Reason (R): The Representation of the People Act, 1951 deals mainly with the conduct of elections and electoral offences.

H. Case-based questions.

Read the given text and answer the following questions:

India, the largest democracy in the world, has a system of democratic federalism which has both large amounts of parties and Westminster-style First Past the Post (FPTP) voting.

The Indian Federal government is made up of a lower house elected with First Past the Post, the Lok Sabha, and an upper chamber elected by the legislatures of the states via the Single Transferable Vote, the Rajya Sabha. Like nearly all countries that use First Past the Post today, the system was a legacy of Britain's colonial rule. (*Source: https://electoral-reform.org.uk/what-electoral-system-does-india-use-to-elect-the-lok-sabha/*)

1. What is the First-Past-the-Post (FPTP) system? How is it used in elections to the Lok Sabha?
2. How are members of the Rajya Sabha elected?
3. What is meant by an election? Why are elections important in a democratic country like India?

AI Buddy

Scan the QR code to :

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- play with AI.
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Theme VIII – Building Blocks in Economics

11

Why Choices Matter: The Basics of Economics

KEY CONCEPTS

- Scarcity and the Need for Choice
- What Do Economists Do?
- Types of Economic Systems
- Opportunity Cost
- The Central Problems of an Economy
- Welfare Economy

SCARCITY AND THE NEED FOR CHOICE

Meaning of Scarcity

Scarcity is the basic economic problem that arises because resources are limited while human wants are unlimited. It means, that we do not have enough resources to satisfy all our desires. Resources include, time land, labour, machinery, and natural resources like water and minerals.

For example, a student may want the latest phone, new clothes, coaching classes, and a vacation trip. However, their family income may not be enough to afford everything at the same time. Because resources are limited, people must make choices and face trade-offs choices must be made.

Scarcity does not mean that something is completely unavailable. It means that it is available in limited quantity compared to people's wants. Even developed countries face scarcity because no country has unlimited resources.

Limited Resources and Unlimited Wants

Human wants are unlimited because as soon as a want is satisfied, another arises. For instance, once a student buys a basic mobile phone, they may later want a more advanced version. Similarly, after purchasing a bicycle, someone may aspire to buy a scooter or a car in the future.

On the other hand, resources are limited.

- A family has limited monthly income.
- A student has only 24 hours in a day.
- A country has limited land and natural resources.

Because of this imbalance between unlimited wants and limited resources, individuals, businesses, and governments must make choices. This creates the need for decision-making and prioritising among wants. For example, the Government of India cannot spend all its budget on defence. It must also allocate funds to education, healthcare, infrastructure, and welfare schemes. Since funds are limited, it must decide how to allocate them across competing needs.

Everyday Examples of Scarcity

Scarcity is not just a theoretical concept; we experience it in daily life.

- **Student's Time Management:** Before exams, a student has limited time but many subjects to revise. The students must decide how much time to spend on each subject.
- **Household Budgeting:** A family with a fixed income must decide how much to spend on groceries, school fees, rent, electricity, and entertainment. If more money is spent on one item, less is available for others.
- **Water Scarcity:** In many parts of India, water is scarce during summer. Families store water and use it carefully because supply is limited.
- **Production Decisions:** A farmer with limited land must choose whether to grow wheat or vegetables. Growing more of one crop means growing less of another.
- **Government Spending:** During a pandemic, the government may increase spending on healthcare, which may reduce funds available for other projects like road construction.

KEY LEARNINGS

- Scarcity arises because resources are limited while human wants are unlimited.
- Scarcity does not mean complete absence of resources, but limited availability relative to wants.
- Every individual, business, and government faces the problem of scarcity.
- Unlimited wants and limited resources create the need for choice and decision-making.
- Prioritising needs over wants is necessary due to scarcity.
- Time, natural resources, and labour are examples of scarce resources.
- Scarcity is the fundamental economic problem and forms the basis of all economic decisions.

DID YOU KNOW? Even countries with abundant natural resources face scarcity. For example, United Arab Emirates has significant oil wealth but faces water scarcity due to its desert climate. This shows that scarcity depends not only on wealth but also on resource availability and environmental conditions.

Engage and Reflect

Field Inquiry: Understanding Scarcity Around Us

Objective:

To observe how scarcity affects daily life in your local area.

What to Do (Field Visit / Experiential Learning):

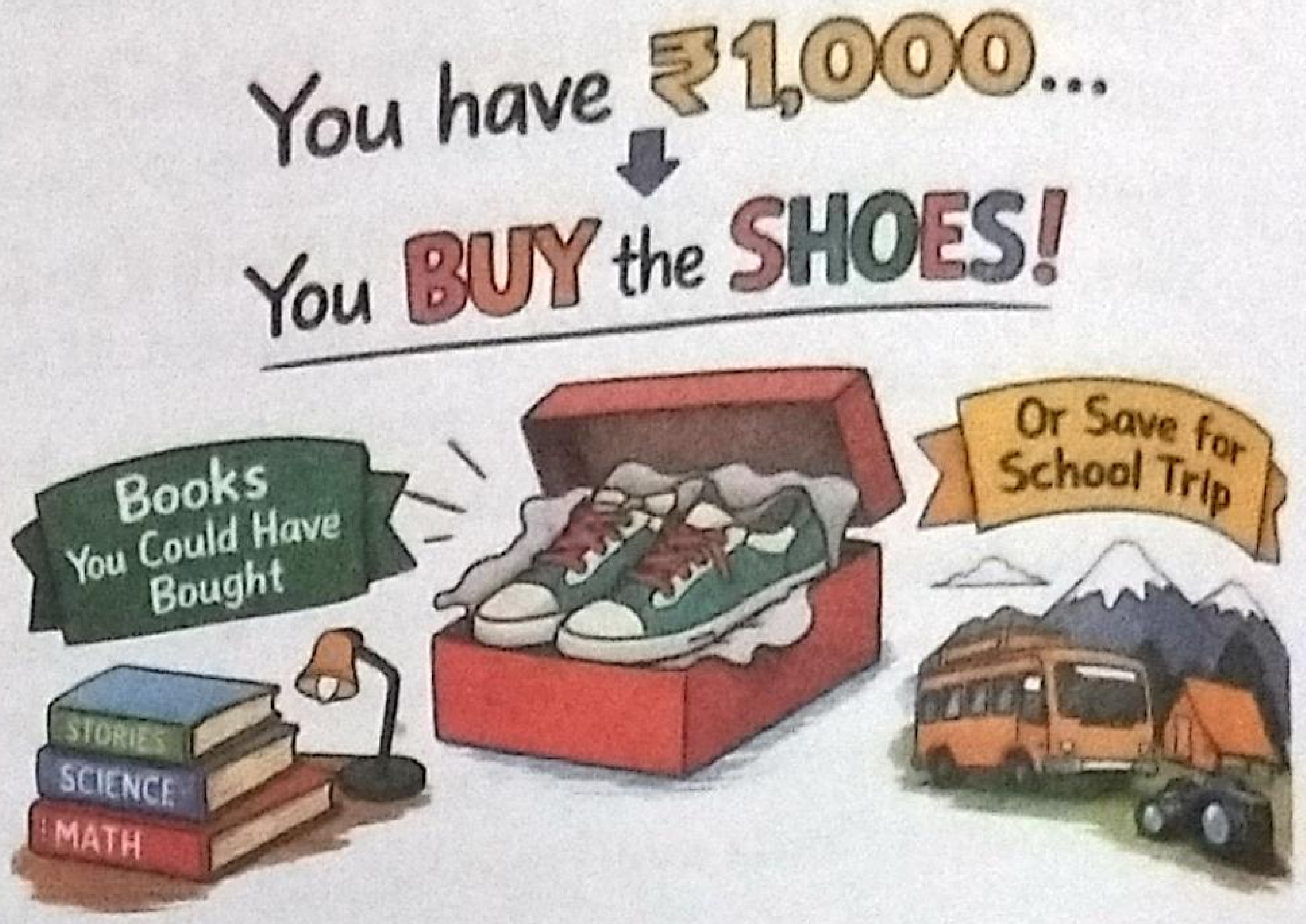
1. Visit a local market or a grocery store in your area.
2. Observe and note:
   - Which goods seem limited in supply?
   - Are prices high for certain items? Why?
   - Is there any seasonal scarcity (e.g., certain vegetables, fruits)?
3. Interview one shopkeeper or resident and ask:
   - Have prices increased recently?
   - What causes shortages or surplus?

OPPORTUNITY COST

Meaning of Opportunity Cost

Opportunity cost refers to the value of the next best alternative forgone when a choice is made. Since resources such as time, money, and effort are limited, choosing one option means giving up another. The value of the best option that is not chosen is called the **opportunity cost**.

For example, suppose you have ₹1,000 and you decide to buy a pair of shoes. With the same money, you could have bought books or saved it for a school trip. If the next best alternative was buying books, then the opportunity cost of buying the shoes is the books you gave up.



The Books are the Opportunity Cost of the Shoes

Opportunity cost is not always measured in money. It can also be measured in terms of time, satisfaction, or benefit. For instance, if you spend three hours watching a movie instead of studying, the opportunity cost is the study and revision time you lost.

In economics, opportunity cost helps individuals, businesses and governments make rational decisions by comparing alternatives before choosing one.

Opportunity Cost in Daily Decision-Making

We face opportunity costs in our everyday lives, often without realising it.

1. **Student's Example:** If a student chooses Science as a stream after Class 10, they give up the option to study Commerce or Arts. The next best stream they give up is the opportunity cost of choosing Science.
2. **Time Management:** If you spend your evening playing cricket, you may have less time to complete homework. The opportunity cost is the homework or study time you give up.
3. **Household Budgeting:** If a family decides to buy a new television, they may postpone renovating their house. If renovation was the next best alternative, then the postponed renovation is the opportunity cost of buying the television.
4. **Government Spending:** If the government spends more money on building highways, it may spend less on healthcare. The reduced healthcare spending is the opportunity cost of highway construction.

Understanding opportunity cost helps people evaluate whether their choices are worth the sacrifice.

Trade-Offs Involved in Choices

A trade-off means giving up one thing to gain another. Opportunity cost is closely related to trade-offs because every choice involves sacrificing an alternative.

For example:

- A farmer with limited land must choose between growing wheat or sugarcane. Producing more wheat means producing less sugarcane.
- A company must decide whether to invest in new machinery or hire more workers. Choosing one option limits the other.
- A student preparing for board exams may reduce time spent on social media. The entertainment sacrificed is the trade-off.

Trade-offs are unavoidable because scarcity exists everywhere. The goal of economic decision-making is to choose options where the benefits are greater than the opportunity cost.

KEY LEARNINGS

- Opportunity cost is the value of the next best alternative that is given up when a choice is made.
- Every choice involves a sacrifice because resources such as time, income (money), and effort are limited.
- Opportunity cost is not always monetary; it can include time, satisfaction, or benefits lost.
- Daily decisions, such as spending money or managing time, involve opportunity costs.
- Trade-offs occur when choosing one option means giving up another
- Individuals, businesses, and governments all face opportunity costs while making decisions.
- Understanding opportunity costs helps in making rational and efficient economic choices.

WHAT DO ECONOMISTS DO?

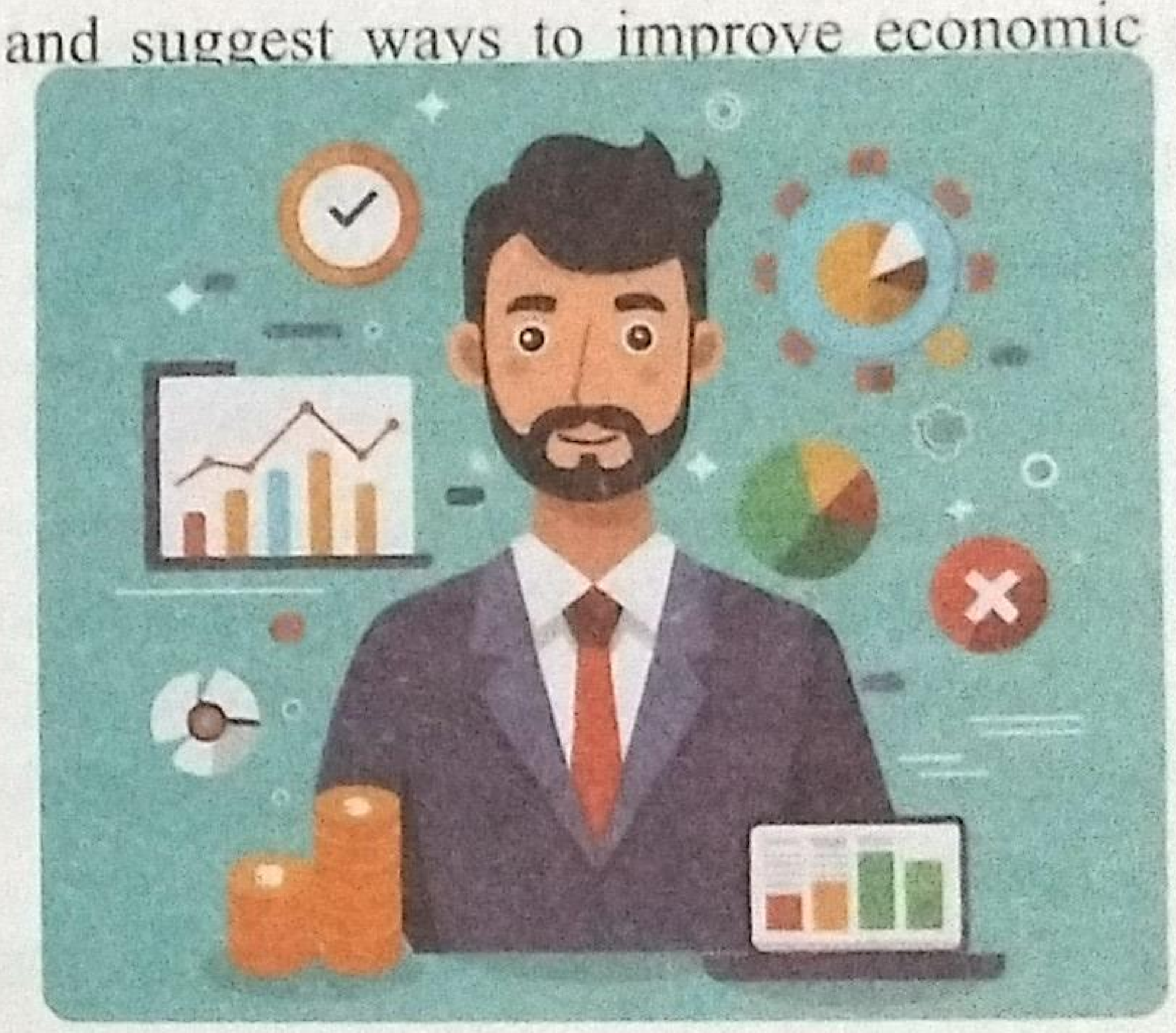
Economists examine how individuals, businesses, and governments use limited resources to satisfy unlimited wants. They analyse how decisions are made regarding production, distribution, and consumption of goods and services. Their work helps in analysing problems and recommend solutions/policies to improving the standard of living in a country.

Role of Economists

The main role of economists is to study how economies function and suggest ways to improve economic conditions. They collect data, analyse trends, and use logical reasoning to understand issues such as inflation, unemployment, poverty, and economic growth.

For example:

- When prices of essential goods like onions or petrol rise sharply, economists study the reasons behind the increase and suggest solutions.
- If unemployment is rising, economists analyse the causes and recommend policies such as skill development programmes or investment in industries.
- During a recession, economists advise governments on increasing spending or reducing taxes to boost economic activity.


"An economist analyse data and trends to understand and improve economic performance"

Economists work in many sectors, such as government departments, banks, research institutions, international organisations like the World Bank, or private companies.

Study of Production, Distribution, and Consumption

Economists often study economic activity through three broad processes:

1. **Production:**

   Production refers to the creation of goods and services. Economists study what goods are produced, how much is produced, and what resources are used.

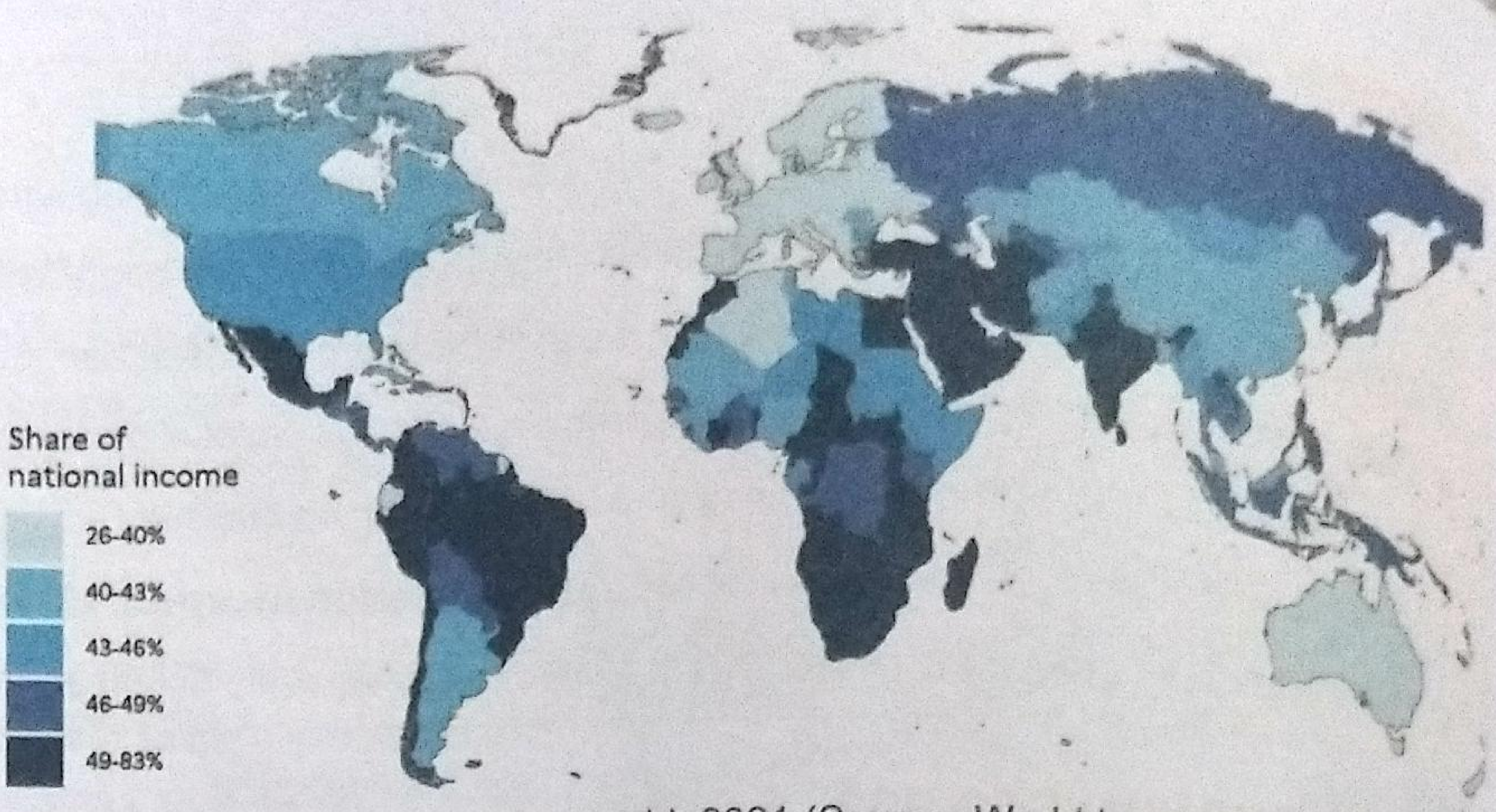
   Example: A car factory uses labour, machines, and raw materials to produce vehicles. Economists analyse how efficiently these resources are used.

Production of car in a factory

2. **Distribution:**

Distribution examines how income is divided among individuals and groups. Economists examine who gets what share of income and resources.

Example: In India, income distribution varies between rich and poor. Economists study this inequality and suggest measures to reduce it.

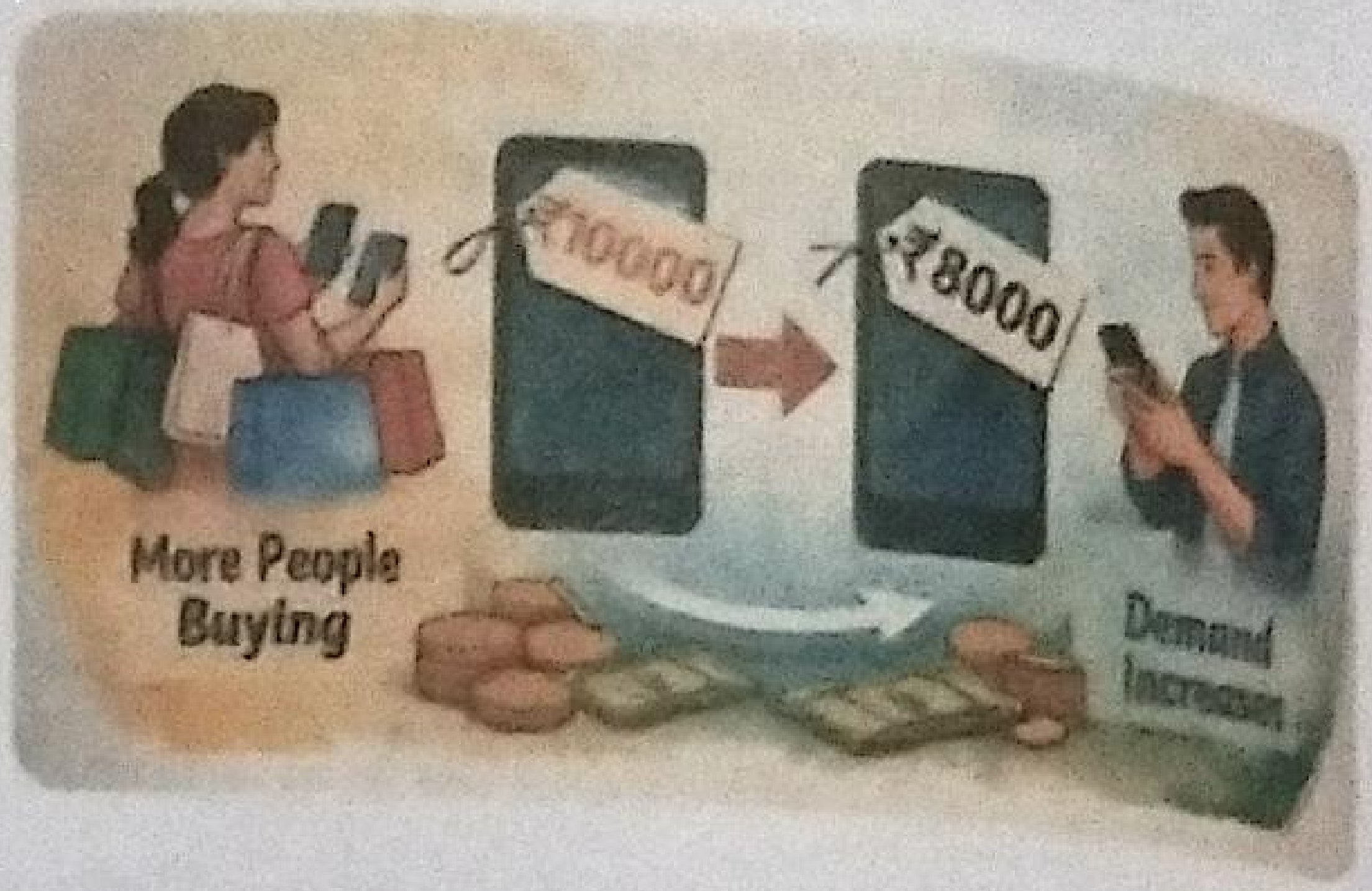


Top 10% income share across world, 2021 (Source: World Inequality report 2022)

3. **Consumption:**

Consumption refers to the use of goods and services to satisfy human wants. Economists analyse consumer behaviour: why people buy certain products and how they respond to changes in prices.

Example: If the price of smartphones falls, more people may buy them. Economists study such patterns.



Use of Economic Analysis in Real-Life Issues

Economic analysis helps in understanding and solving real-world problems.

- **Inflation:** When prices rise continuously, economists study demand, supply, and production costs to suggest solutions.
- **Unemployment:** Economists analyse job markets and recommend policies to create employment opportunities.
- **Government Budgeting:** Economists help governments decide how to allocate funds for education, healthcare, defence, and infrastructure.
- **Environmental Issues:** Economists study the impact of pollution and suggest policies like carbon taxes to protect the environment.
- **Poverty Reduction:** Through data and research, economists design welfare schemes and social safety nets to support weaker sections.

For example, during the COVID-19 pandemic, economists advised governments and helped design relief packages to support businesses and workers.

KEY LEARNINGS

- Economists study how individuals, businesses, and governments use limited resources to satisfy unlimited wants.
- They analyse production, distribution, and consumption to understand how goods and services are created, priced, and allocated.
- Economists use data and research to study issues such as inflation, unemployment, poverty, and economic growth.
- Their analysis helps governments design policies related to budgeting, taxation, welfare schemes, and economic development.
- Economic analysis plays a vital role in understanding and addressing real-life problems and contributing to improvements in the standard of living.

THE CENTRAL PROBLEMS OF AN ECONOMY

Every economy in the world — whether developed or developing — faces three basic problems. These problems arise because resources such as land, labour, capital, and time are limited, while human wants are unlimited. Therefore, every country must decide how to use its scarce resources efficiently.

These three basic questions are called the central problems of an economy.

What to Produce?

This question deals with deciding which goods and services should be produced and in what quantity. Since resources are limited, a country cannot produce everything in unlimited amounts. It must decide whether to produce more essential goods (like food, medicines, and basic clothing) or more luxury goods (like expensive cars and designer products).

Real-life examples:

- A farmer with limited land must choose whether to grow wheat or sugarcane.
- During the COVID-19 pandemic, many countries increased the production of masks, sanitizers, and shifted resources toward essential healthcare goods..

Thus, the economy must prioritise needs based on importance and demand.

How to Produce?

This problem refers to deciding the method or technique of production. It means, goods should be produced using more labour (labour-intensive method) or more machines (capital-intensive method)?

The choice depends on the availability and cost of resources.

Real-life examples:

- In a country like India, where labour is abundant and relatively cheap, many industries use labour-intensive methods.
- In developed countries like Germany or Japan, industries use more machines and advanced technology because capital is more abundant, wages are higher, and technology is advanced.
- A construction company may choose between hiring more workers or using advanced machinery to complete a project.

The chosen method affects employment levels, production cost, and efficiency.

For Whom to Produce?

This question deals with who will get the goods and services produced.

Since everyone cannot get everything, the economy must decide how goods and income are distributed among people.

Real-life examples:

- Expensive cars are generally purchased by wealthy individuals.
- Basic food grains supplied through government ration shops are meant for low-income families.
- Private hospitals provide premium services to those who can afford them, while government hospitals serve the general public.

KEY LEARNINGS

- The central problems of an economy arise due to scarcity of resources.
- Every economy must decide what goods and services to produce and in what quantity.
- The choice of production method (labour-intensive or capital-intensive) affects cost and employment.

Mixed Economy

A mixed economy combines features of both market and planned systems. Both the government and private sector play important roles.

Key Features:

- Private ownership along with government regulation
- Some strategic sectors (such as defence and railways in some countries) may be owned or closely regulated by the government.
- Market forces determine prices in many sectors
- Government ensures welfare through policies and schemes

For example:

- India follows a mixed economy. Private companies operate in sectors like IT and manufacturing, while the government while the government plays a major role in areas such as defence and public transport, alongside private participation in many places.
- The government regulates industries, provides subsidies, and runs welfare schemes like VB-G RAM G (Old name-MGNREGA) and Public Distribution System (PDS).

A mixed economy tries to combine the efficiency of the market system with the social welfare goals of a planned system.

Comparison of the Three Systems

Basis	Market Economy	Centrally Planned Economy	Mixed Economy
Ownership	Private individuals	Government	Both private and government
Decision-making	By market forces	By government	Shared
Role of Government	Limited	Very high	Moderate
Main Objective	Profit	Equality	Growth with welfare
Example	USA (largely)	North Korea	India

KEY LEARNINGS

- An economic system determines how a country answers the central economic problems.
- A market economy relies largely on demand and supply with minimal government intervention.
- A centrally planned economy is mostly controlled and managed by the government.
- A mixed economy combines features of both market and planned systems.
- India follows a mixed economic system.

DID YOU KNOW?

No country today follows a market economy. Even largely market-based economies like the United States have government regulations and welfare programmes, while countries with strong state control allow limited private businesses. Most modern economies are mixed to some extent.

WELFARE ECONOMY

A welfare-oriented economy is an economic system in which the government takes active steps to promote the

- The distribution of goods and services depends on purchasing power, prices, and government policies.
- All countries, regardless of their economic system, face these three fundamental problems.

TYPES OF ECONOMIC SYSTEMS

Every country must decide how to organise its economy and answer the three central problems — what to produce, how to produce, and for whom to produce. The method a country uses to make these decisions is called its **economic system**.

There are three main types of economic systems:

- Market (Free Market) Economy/Capitalist Economy
- Centrally Planned Economy/Socialist Economy
- Mixed Economy

Market (Free Market) Economy

In a market economy, many economic decisions are made by **individuals** and **private businesses**, and prices are largely guided by demand and supply. However, the government still regulates markets and provides public services.

Key Features:

- Private ownership of resources
- Freedom of choice for consumers and producers
- Profit motive drives production
- Limited government interference

For example:

- In market-oriented economies like the United States, many business decisions are guided by consumer demand and profit.
- If the demand for electric vehicles increases, companies produce more of them to earn profits.
- If consumers stop buying a product, companies may stop producing it.

While this system encourages competition and innovation, it can also lead to income inequality because access to many goods and services depends on purchasing power.

Centrally Planned Economy

In a centrally planned economy, the government controls and makes almost all major economic decisions. Resources are owned and managed by the state, and government authorities fix production targets.

Key Features:

- Government ownership of resources
- Central authority decides production and prices
- Focus on equality and welfare
- Limited private enterprise

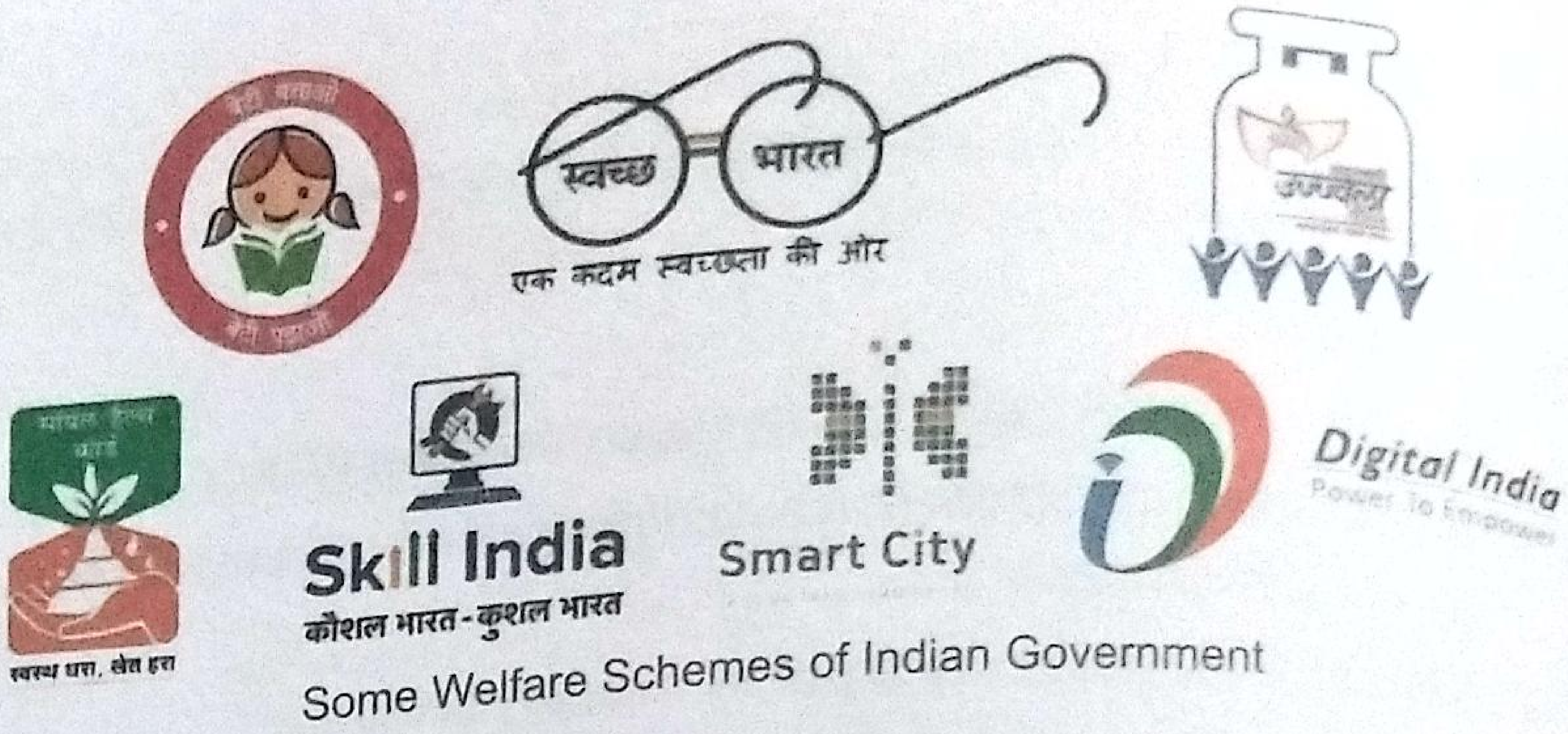
For example:

- In countries like North Korea, the government decides what goods are produced and how much.
- The government may decide to produce more essential goods like food and housing rather than luxury items.

This system aims to reduce inequality, but it may suffer from inefficiency, lack of competition, and limited consumer choice.

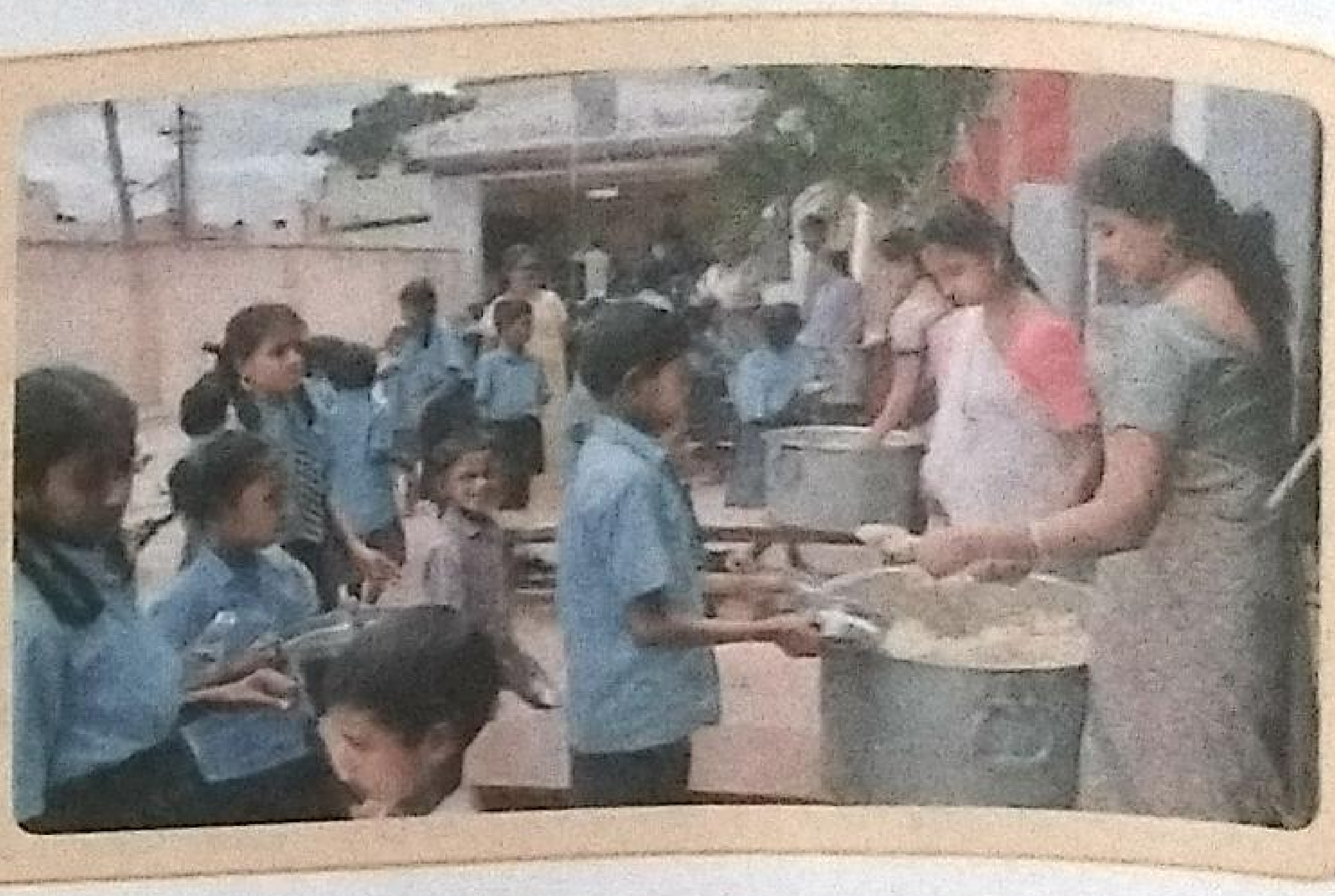
well-being of all citizens, especially the poor and vulnerable sections of society. The main aim is not only economic growth but also social justice and equality.

In a welfare economy, the government aims to ensure that basic needs such as food, education, healthcare, and housing are accessible to everyone, not just those who can afford them.



Some Welfare Schemes of Indian Government

DID YOU KNOW? The Mid-Day Meal Scheme, launched on August 15, 1995, and now known as PM POSHAN (Pradhan Mantri Poshan Shakti Nirman), is a centrally sponsored welfare program in India providing free hot cooked meals to children in government and government-aided schools, as well as Balvatikas. It aims to improve nutritional levels, boost school enrollment and attendance, and reduce classroom hunger.



Meaning of Welfare Economy

A welfare economy focuses on improving the quality of life of people. It recognises that in a purely market-based system, some people may be left behind due to poverty, unemployment, illness, or lack of opportunities.

For example:

- If education is only provided by private institutions, children from poor families may not be able to attend school.
- If healthcare services are very expensive, many people may not receive proper treatment.

Therefore, in a welfare economy, the government intervenes to provide essential services and reduce inequality. India follows many principles of a welfare state, as reflected in the Directive Principles of State Policy in the Constitution.

Role of Government

In a welfare economy, the government plays an important role in ensuring fairness and social security. Some key functions of the government include:

1. **Providing Public Goods and Services:**
   Roads, bridges, public parks, government schools, and hospitals are provided for public use.
2. **Reducing Inequality:**
   The government collects taxes from higher-income groups and uses the revenue to fund welfare programmes for disadvantaged groups.
3. **Implementing Welfare Schemes:**
   Schemes such as VB-G RAM G (employment guarantee), PM-KISAN (financial support to farmers), and free vaccination programmes are examples.
4. **Regulating Markets:**
   The government regulates unfair trade practices, prevents exploitation, and sets minimum labour standards (such as minimum wages).

   For example, goverment checks the quality of fool through standards like FSSAI.

Importance of Social Safety Nets

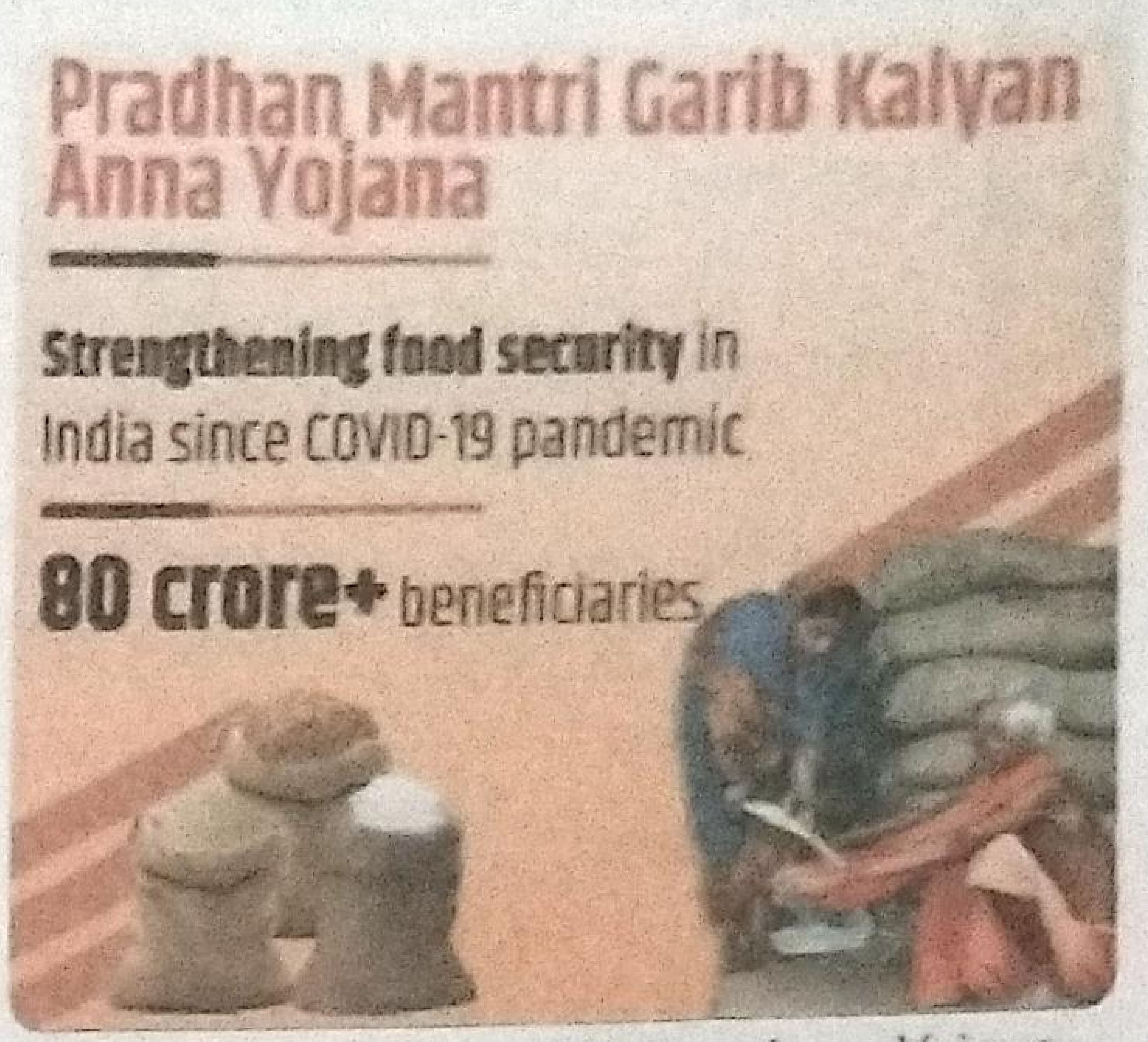
Social safety nets are programmes designed to protect people during difficult times such as unemployment, illness, or old age.

Examples of social safety nets include:

- Public Distribution System (PDS) providing subsidised food grains
- Mid-Day Meal Scheme for school children
- Free education under the Right to Education Act
- Pension schemes for senior citizens
- Health insurance schemes like Ayushman Bharat

These programmes ensure that even vulnerable sections of society can live with dignity and security.

Without social safety nets, economic inequality may increase, and many people may struggle to meet basic needs.


Pradhan Mantri Garib Kalyan Anna Yojana
Strengthening food security in India since COVID-19 pandemic
80 crore+ beneficiaries

Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY): A Social Safety Scheme

KEY LEARNINGS

- A welfare economy focuses on improving the well-being and quality of life of all citizens.
- The government plays an active role in reducing poverty and inequality.
- Public goods and welfare schemes are essential features of a welfare-oriented economy.
- Social safety nets protect vulnerable groups during economic hardships.
- India follows many principles of a welfare state, aiming to promote inclusive growth.

Engage and Reflect

Real-Life Inquiry: Government Choices and Welfare

Objective:

To analyse how governments make economic decisions and support citizens.

Situation-Based Activity:

Imagine you are the Finance Minister of a country with ₹10,000 crore to allocate.

You must divide funds among:

- Healthcare
- Infrastructure
- Education
- Poverty Alleviation
- Defence

Task (Group Collaboration):

1. Allocate the budget.
2. Justify your choices.
3. Identify the opportunity cost of your decisions.

Discussion Questions:

- Why can't the government spend equally on everything?
- Who benefits most from welfare schemes?
- What happens if the government ignores social safety nets?

GLOSSARY

Scarcity : Scarcity is the economic problem that arises because resources are limited while human wants are unlimited.

Resources : Resources are the inputs such as land, labour, capital, and natural resources that are used to produce goods and services.

Opportunity Cost : Opportunity cost is the value of the next best alternative that is given up when a choice is made.

Trade-Off : A trade-off is the situation in which choosing one option means giving up another option due to limited resources.

Production : Production is the process of creating goods and services using available resources.

Distribution : Distribution refers to the way goods, services, and income are shared among individuals in an economy.

Consumption : Consumption is the use of goods and services to satisfy human wants.

Economists : Economists are experts who study how resources are used and analyse economic issues such as inflation, unemployment, and poverty.

Market Economy : A market economy is an economic system in which most decisions are made by private individuals and businesses and prices are largely guided by demand and supply, with some government regulation.

Welfare Economy : A welfare economy is an economic system in which the government takes active steps to promote social well-being and reduce inequality.

Exercises

A. Multiple choice questions (MCQ's).

1. Scarcity arises because:
   (a) Resources are unlimited
   (b) Wants are limited
   (c) Resources are limited but wants are unlimited
   (d) Goods are free
2. The value of the next best alternative forgone is called:
   (a) Trade-off
   (b) Opportunity cost
   (c) Production cost
   (d) Scarcity
3. Which of the following is NOT a central problem of an economy?
   (a) What to produce
   (b) How to produce
   (c) Where to produce
   (d) For whom to produce
4. In a market economy, prices are mainly determined by:
   (a) Government orders
   (b) Demand and supply
   (c) Social norms
   (d) Labour unions
5. India follows which type of economic system?
   (a) Market economy
   (b) Centrally planned economy
   (c) Mixed economy
   (d) Socialist economy
6. Consider the following statements regarding opportunity cost:
   1. Choosing to study instead of watching television involves giving up leisure time.
   2. The time spent studying represents the opportunity cost of watching television.
   3. Every choice made using limited resources involves a trade-off.
   4. Opportunity cost only applies to decisions involving money.

Which of the statements given above are correct?

(a) 1 and 4 only
(b) 1 and 3 only
(c) 1, 2 and 3 only
(d) 1, 2, 3 and 4

7. Production refers to:

(a) Use of goods
(b) Sharing of income
(c) Creation of goods and services
(d) Collection of taxes

8. A centrally planned economy aims mainly at:

(a) Profit maximisation
(b) Competition
(c) Social welfare and Equality
(d) Private ownership

9. Social safety nets are designed to:

(a) Increase profits
(b) Protect vulnerable sections
(c) Promote luxury goods
(d) Reduce exports

10. A student has only three days left before final examinations but has five subjects to revise thoroughly. Due to limited time, the student must decide how to allocate study hours among subjects. Which of the following best illustrates the economic concept involved in this situation?

(a) The availability of unlimited natural resources.
(b) The elimination of choice due to fixed schedules.
(c) The problem of scarcity arising from limited time and unlimited needs.
(d) The absence of opportunity cost in academic decisions.

11. Consider the following statements regarding the indirect consequences of poaching on tiger populations:

I. Poaching disrupts territorial balance, forcing some tigers to move closer to human settlements.
II. Increased movement of tigers towards human areas may lead to a rise in human–wildlife conflicts.

Which of the following is correct?

(a) Only Statement I is correct.
(b) Only Statement II is correct.
(c) Both Statements I and II are correct.
(d) Neither Statement I nor Statement II is correct

12. Distribution deals with:

(a) Making goods
(b) Sharing goods and income
(c) Selling goods
(d) Advertising

13. The main aim of a welfare economy is:

(a) Profit
(b) Equality and social justice
(c) Export growth
(d) Competition

14. Picture 1 shows a farmer with limited land deciding whether to grow wheat or sugarcane. Which economic concept is best illustrated in this situation?

(a) Opportunity cost
(b) Public goods
(c) Unlimited resources
(d) Inflation

15. Match the following and choose the correct option:

Column A		Column B
1.	What to produce	A. Choice of technique of production
2.	How to produce	B. Allocation of resources among goods
3.	For whom to produce	C. Distribution of goods among individuals
4.	Scarcity	D. Limited resources with unlimited wants

Options:

1. A-2, B-1, C-3, D-4
2. A-1, B-2, C-4, D-3
3. A-3, B-4, C-1, D-2
4. A-2, B-3, C-1, D-4

B. Fill in the blanks.

1. Scarcity arises because resources are __________.
2. The value of the next best alternative given up is called __________.
3. The three central problems arise due to __________ of resources.
4. India follows a __________ economy.
5. Programmes like PDS and MGNREGA are examples of __________.

C. Match the following.

Column A		Column B
1.	Scarcity	A. Next best alternative
2.	Opportunity Cost	B. Limited resources
3.	Market Economy	C. Government support
4.	Welfare Economy	D. Demand and supply

D. Very short answer questions.

1. Define scarcity.
2. What is opportunity cost?
3. Name the three central problems of an economy.
4. What is production?
5. What is meant by distribution?
6. Give one example of a social safety net.
7. Who decides production in a planned economy?
8. What is a mixed economy?
9. Give one example of trade-off in daily life.

E. Short answer questions.

1. Explain the meaning of unlimited wants with an example.
2. How does opportunity cost help in decision-making?
3. Explain "how to produce" with a real-life example.
4. Differentiate between market and planned economy
5. What role does the government play in a welfare economy?
6. Explain distribution with an example.
7. Why do all economies face central problems?
8. Explain trade-off with an example.

F. Long answer questions.

1. Explain the concept of scarcity and the need for choice with suitable examples.
2. Explain opportunity cost and trade-offs with real-life examples.
3. Discuss the role of economists in solving real-life economic problems.

4. Explain the three central problems of an economy with examples.
5. Compare market, centrally planned, and mixed economies.
6. Explain the meaning and importance of a welfare economy.
7. Discuss the role of social safety nets in promoting social justice.
8. How does a mixed economy balance growth and welfare?

G. Assertion–Reason questions.

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(c) (A) is correct but (R) is wrong
(d) (A) is wrong but (R) is correct

1. **Assertion (A):** Scarcity exists in all economies.
   Reason (R): Resources are limited while wants are unlimited.
2. **Assertion (A):** Opportunity cost helps in rational decision-making.
   Reason (R): It compares benefits of different alternatives.
3. **Assertion (A):** In a centrally planned economy, prices are decided by demand and supply.
   Reason (R): Government controls economic decisions.
4. **Assertion (A):** India follows a mixed economy.
   Reason (R): Both government and private sector participate in economic activities.

H. Case-based questions.

Read the passage carefully and answer the questions:

During the COVID-19 pandemic, the government increased spending on healthcare, provided free food grains under the Public Distribution System, and launched relief packages for businesses. At the same time, some infrastructure projects were postponed due to limited funds.

1. Identify the central problem highlighted in the passage.
2. What is the opportunity cost of increasing healthcare spending?
3. How does this example reflect features of a welfare economy?

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Theme IX : The Price Puzzle: What Drives the Market

12

Why Prices Change: The Story of Demand and Supply

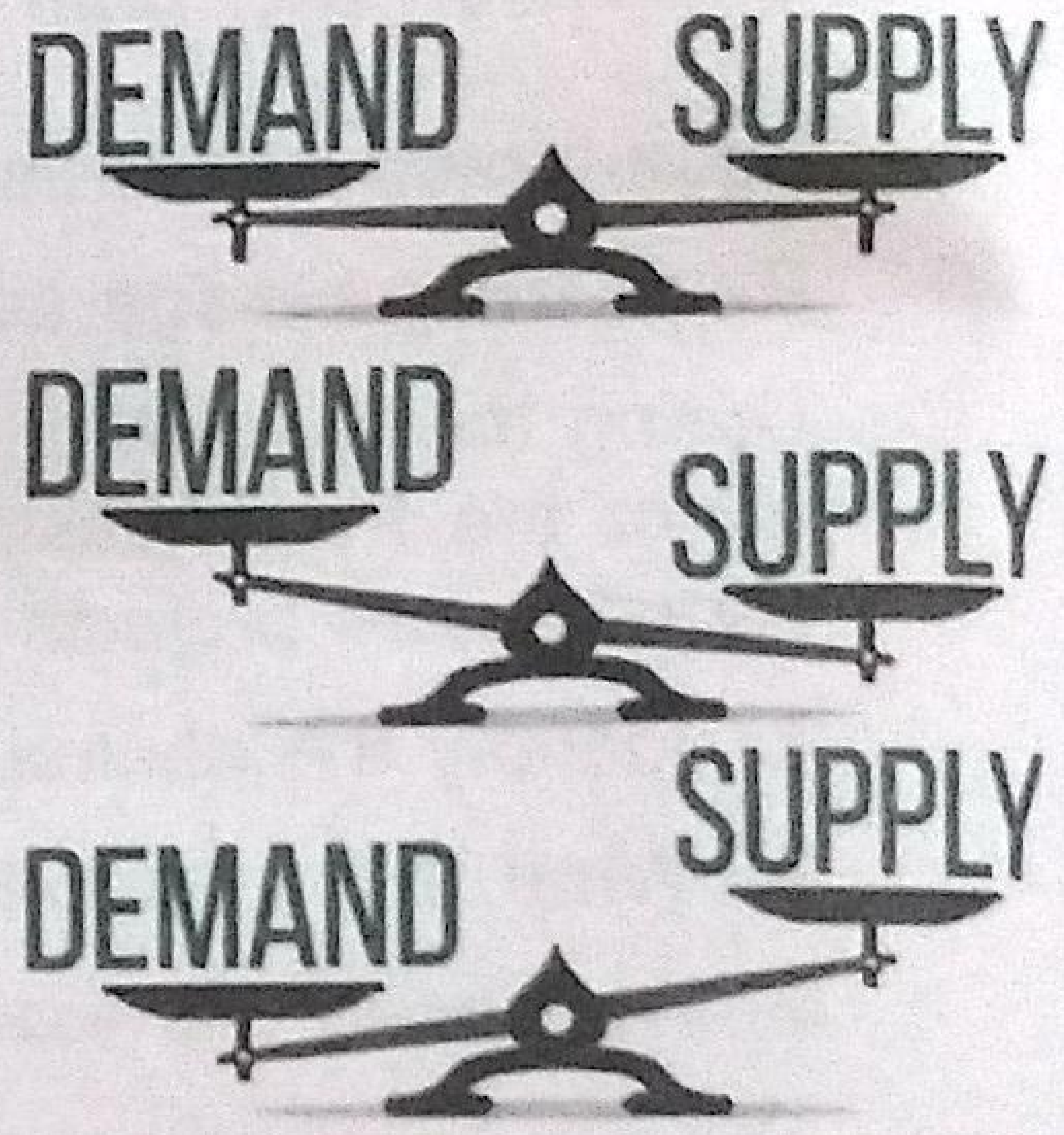
KEY CONCEPTS

- Why Price Changes?
- Supply
- When Markets Do Not Follow Simple Theory
- Market Failure
- Demand
- Market Equilibrium
- Price Controls

WHY PRICE CHANGES

Prices change every day in markets around us. The price of tomatoes can rise after heavy rain damages crops. The price of umbrellas can increase during the monsoon season. A cinema ticket can cost more on weekends than on weekdays. These changes are not random. In most cases, prices change because of the way buyers and sellers respond to market conditions.

Economics explains these changes using two simple ideas: demand and supply. Demand describes what buyers want and can afford. Supply describes what sellers are willing and able to provide. When demand and supply meet, they help decide what the price will be and how much of a good or service will be bought and sold.



Prices as signals in markets

A price is more than a number on a label. It acts like a signal that carries information to both buyers and sellers.

For buyers, price signals how costly something is.

If the price of a product rises, many people will think carefully before buying it. They may buy less, delay the purchase, or choose an alternative. If the price falls, more people may feel that the product is affordable and worth buying.

For sellers, price signals how profitable it might be to sell more.

If the price of a product rises, producers may try to supply more because the higher price can cover costs and bring more profit. If the price falls, producers may reduce supply because selling becomes less attractive.

Because of these signals, prices help coordinate decisions without any single person controlling the whole market. This is especially clear in markets with many buyers and many sellers, such as fruit markets, clothing shops, or mobile phone services.

CINTHOL
CINTHOL
CINTHO
PEARS 200 GMS
BUY 5 GET
2 FREE

Discount attracts buyers

However, prices also change when conditions change. Some common reasons include:

- **Changes in costs of production:** If fuel prices rise, transportation becomes more expensive, and the supply of many goods can become costlier.
- **Changes in incomes:** If people earn more, they may buy more goods and services, which can increase demand.
- **Changes in tastes and preferences:** A new fashion trend can increase demand for certain clothes.
- **Changes in expectations:** If people expect prices to rise in the future, they may buy more now, increasing demand today.
- **Changes in the number of buyers or sellers:** If more sellers enter a market, supply can increase. If more buyers want the product, demand can increase.

Prices, therefore, are closely connected to how markets respond to changing conditions.

KEY LEARNINGS

- Prices act as signals that guide the decisions of buyers and sellers in markets.
- Price changes often happen because demand or supply conditions in the market change.
- Buyers generally prefer lower prices, while sellers generally prefer higher prices.
- Everyday choices, when repeated by many people, can change market outcomes.

DEMAND

Demand explains the buying side of a market. It focuses on consumers and answers a simple question: how much of a good or service will people buy at different prices?

n our everyday life, we can see demand in your own choices. If the price of a snack rises, you might buy it less often. If the price of a bus ticket falls, you might travel more. Economists study these patterns and describe them using the Law of Demand, demand schedules, and demand curves.

The Law of Demand

he Law of Demand states that, other things remaining the same, when the price of a good rises, the quantity demanded falls, and when the price of a good falls, the quantity demanded rises.

This happens for two main reasons:

1. **The substitution effect:** When the price of one product rises, people often switch to a similar product that is cheaper. For example if the price of butter rises, some families may buy more margarine instead.
2. **The income effect:** When a product becomes more expensive, people feel as if their money buys less. Their purchasing power falls, so they reduce buying. For example if the price of cooking oil rises, a household may use it more carefully and buy less than before.

The Law of Demand helps us predict how buyers respond to price changes. However, it does not say that buyers always stop buying when prices rise. It says that they usually buy less than before.

The Law of Demand matches many real life experiences:

- If the price of ice cream rises on a hot day, some people may buy fewer ice creams or choose a cheaper snack.
- If the price of a bus ticket falls because of a discount, more people may choose to travel by bus.
- If the price of a popular video game falls after a few months, more players may buy it.

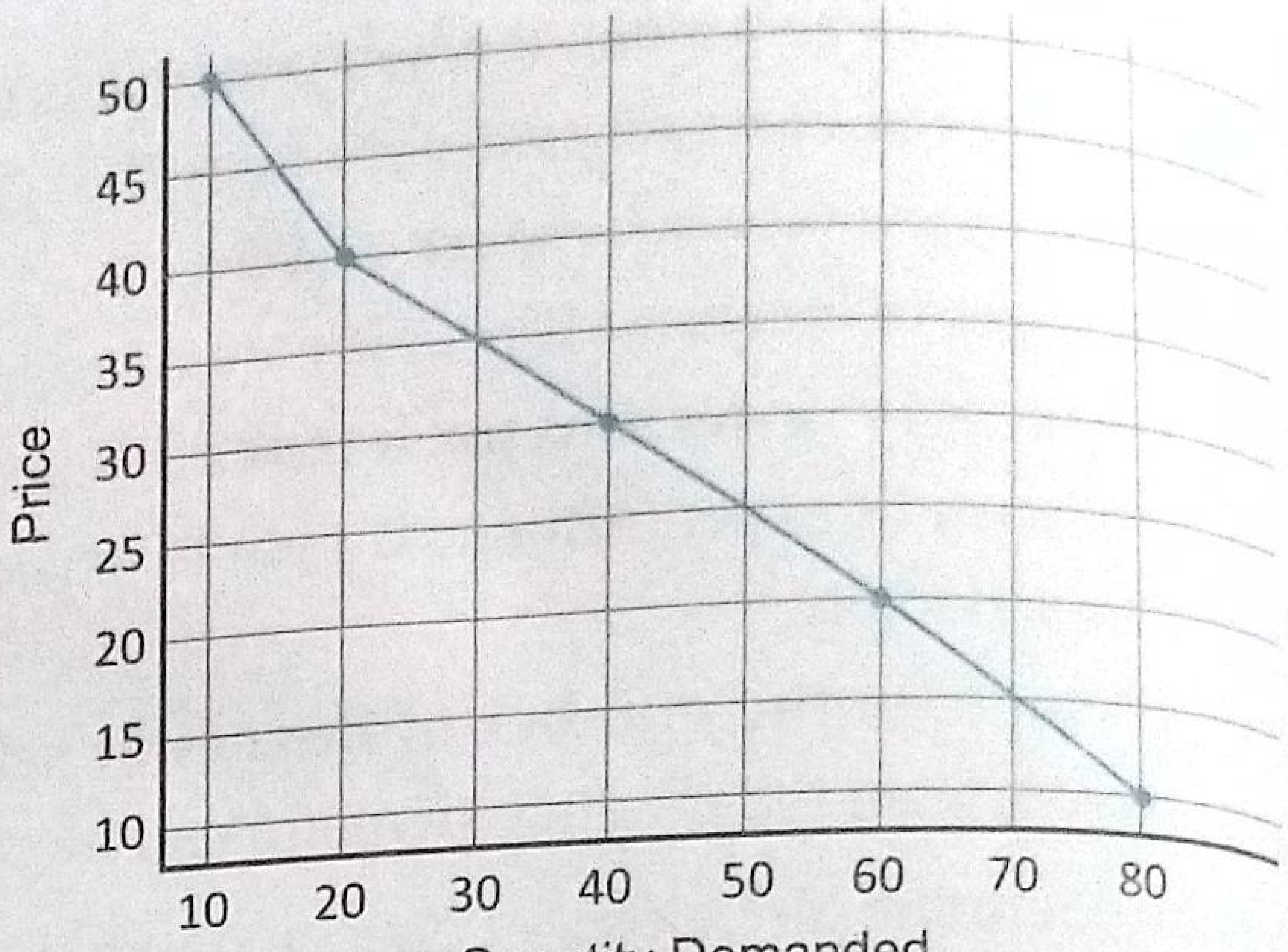
The Demand Curve and Quantity Demanded

A demand curve is a graph that shows the relationship between price and quantity demanded. It is usually drawn with price on the vertical axis and quantity on the horizontal axis. For most goods, the demand curve slopes downward from left to right. This shape shows the Law of Demand: higher prices are linked with lower quantities demanded.

It is important to understand the idea of **quantity demanded.** Quantity demanded means the exact amount consumers want to buy at a particular price, during a particular time period.

A key point is the difference between:

- **A change in quantity demanded:** this happens when the price of the good changes, and consumers move along the same demand curve.
- **A change in demand:** this happens when something other than the price changes, and the whole demand curve shifts.



Demand Curve showing inverse relationship between Price and Quantity demanded

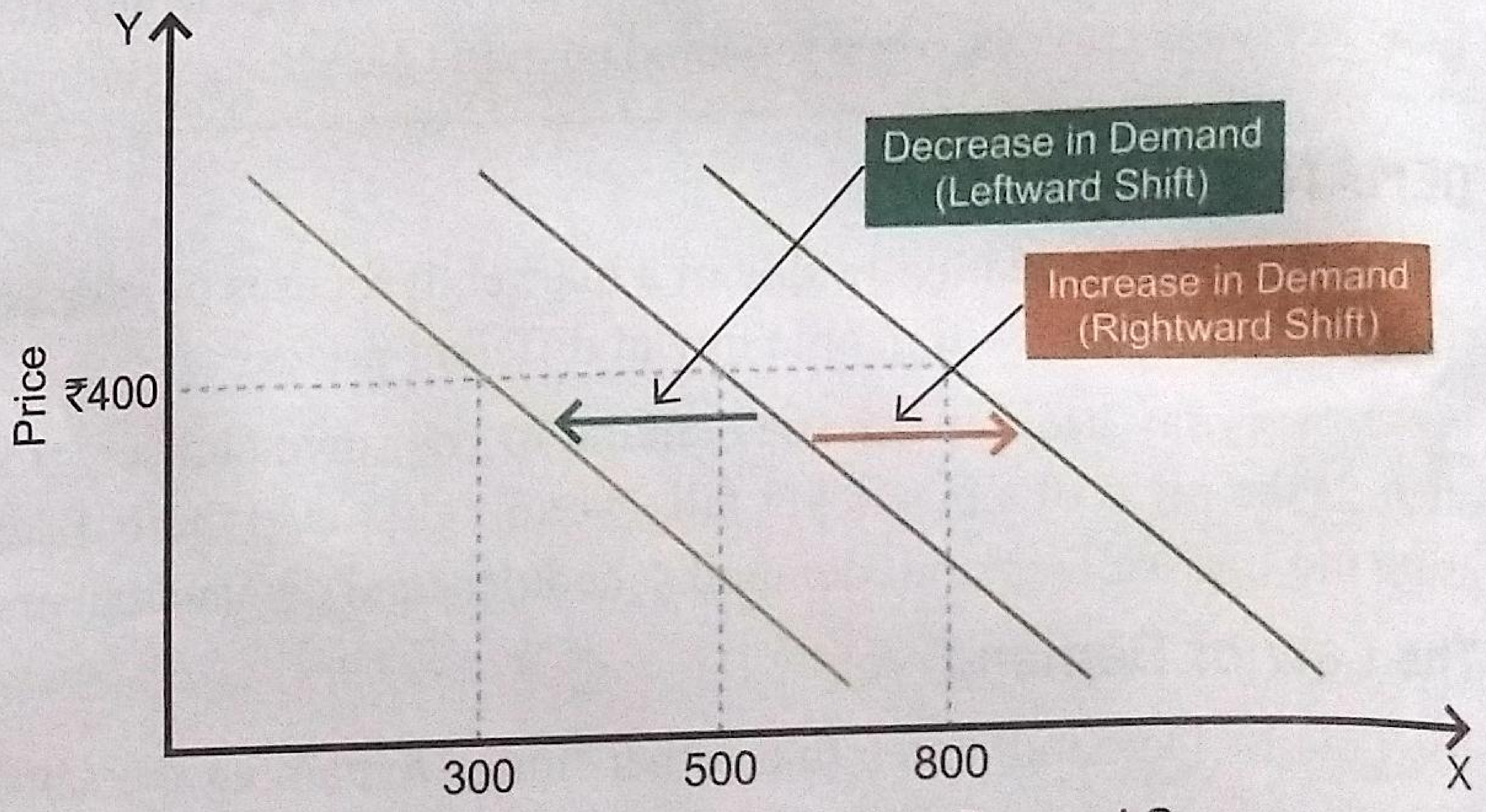
For example:

- If the price of tea falls, and people buy more tea, that is a change in quantity demanded.
- If people start preferring tea more than coffee, even at the same prices, that is a change in demand.

Shifts in Demand

Demand can change even when the price of the good stays the same. When this happens, the demand curve shifts.

- If demand increases, the demand curve shifts to the right. At same price, consumers want to buy more than before.
- If demand decreases, the demand curve shifts to the left. At same price, consumers want to buy less than before.



Quantity Demanded Shift in Demand Curve

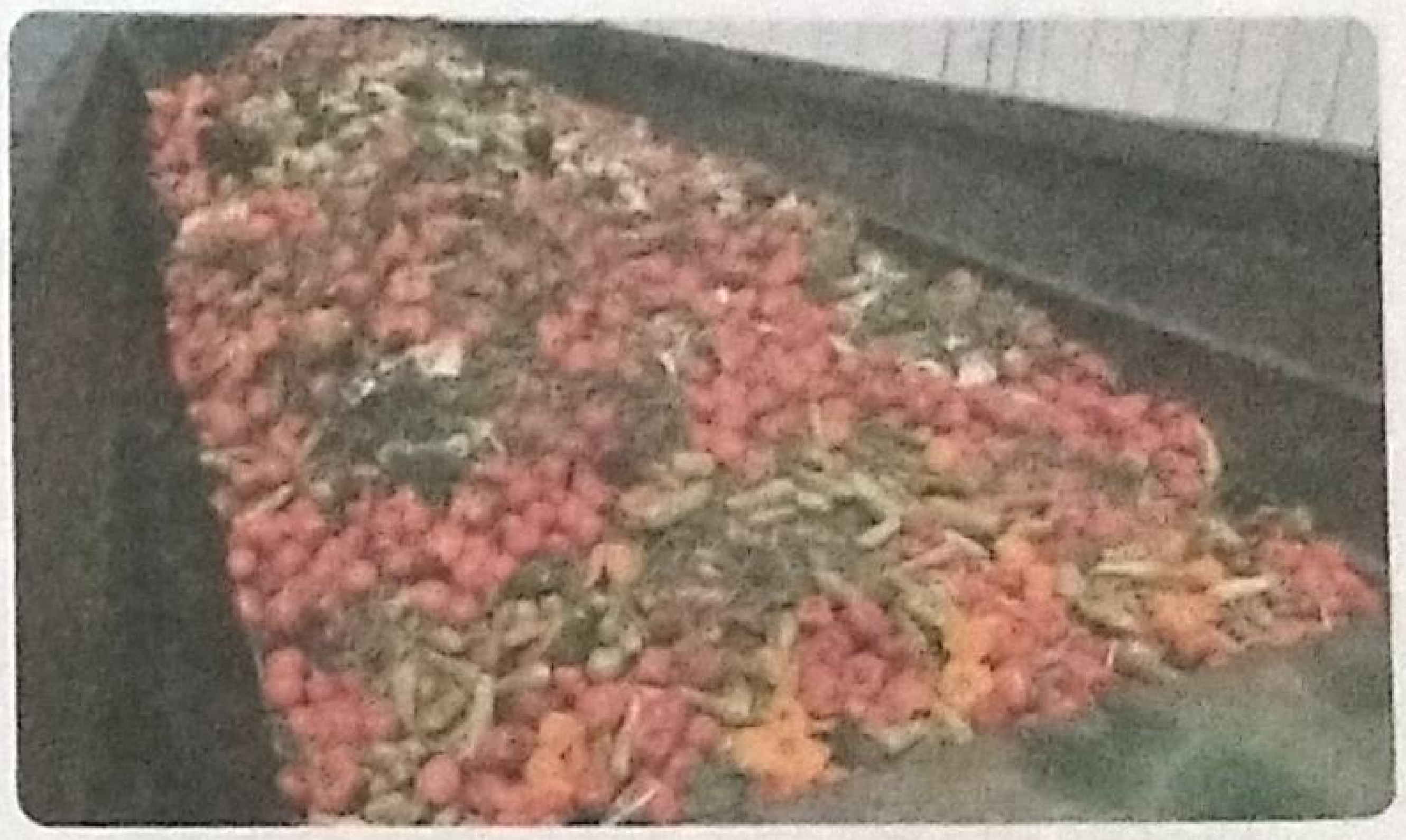
Common causes of changes in demand include:

1. **Income**
   - When income rises, demand for many goods rises because people can afford more.
   - When income falls, demand often falls because people reduce spending.
2. **Tastes and preferences**
   - If more students begin to prefer fruit juice instead of fizzy drinks, demand for fruit juice rises and demand for fizzy drinks may fall.
3. **Prices of related goods**
   - **Substitutes:** goods that can replace each other, such as tea and coffee. If coffee becomes more expensive, demand for tea may rise.
   - **Complements:** goods that are often used together, such as smartphones and mobile data. If smartphone prices fall and more people buy smartphones, demand for mobile data may rise.
4. **Population and number of buyers**
   - If a town's population increases, demand for many goods like bread, transport, and housing can rise.
5. **Expectations about the future**
   - If people expect prices to rise soon, they may buy more now, increasing demand today.
   - If people expect prices to fall soon, they may wait, decreasing demand today.

KEY LEARNINGS

- Demand means willingness and ability to buy a good at different prices over time.
- The Law of Demand says quantity demanded usually falls when price rises, and rises when price falls.
- A change in price causes movement along the demand curve, changing quantity demanded.
- Factors like income, tastes, related goods, and expectations can shift demand.
- When demand shifts, buyers want more or less at every price than before.

SUPPLY



Excess supply can lead to wastage

upply explains the selling side of a market. It focuses on producers nd answers a simple question: how much of a good or service ill sellers offer for sale at different prices? In everyday life, we an see supply in action. If the price of a product rises, sellers may y to produce and sell more of it. Economists study these patterns nd describe them using the Law of Supply, supply schedules, and upply curves.

he Law of Supply

he Law of Supply states that, in general, when the price of a good rises, the quantity supplied rises, and when the ice of a good falls, the quantity supplied falls, assuming other factors do not change.

his happens because a higher price often makes production and selling more profitable. Producers respond to is stronger reward by supplying more.

he Law of Supply matches many real life experiences:

- If the market price of tomatoes rises, farmers may try to bring more tomatoes to market, and some farmers may plant more tomatoes in the next season.
- If the price of handmade crafts rises at a local fair, craft sellers may produce more items to sell.
- If the price of tutoring services rises, more people may offer tutoring because it becomes a better way to earn income.

The Law of Supply does not mean that producers can always increase supply immediately. Some goods take time o produce. Farmers cannot grow extra wheat overnight, and factories cannot instantly build a new production line. In the short run, supply may be limited by time, resources, and capacity. Over a longer period, producers can often adjust more.

Engage and Reflect

Choose one item your family buys regularly (e.g., tomatoes, onions, milk, notebook). Record its price from 3 different shops/sellers (local shop, street vendor, supermarket/online). Note the quantity/quality (size, brand, freshness).

- Why might the same item have different prices in different places?
- Is the difference due to demand, supply, quality, or transport costs?
- Which price seems "fair" and why?

The Supply Curve and Quantity Supplied

A supply curve is a graph that shows the relationship between price and quantity supplied. It is usually drawn with price on the vertical axis and quantity on the horizontal axis. For most goods, the supply curve slopes upward from left to right. This shape shows the Law of Supply: higher prices are linked with higher quantities supplied.

It is important to understand **quantity supplied**.

Quantity supplied means the exact amount producers want to sell at a particular price, during a particular time period.

A key point is the difference between:

- **A change in quantity supplied:** this happens when the price of the good changes, and producers move along the same supply curve.
- **A change in supply:** this happens when something other than the price changes, and the whole supply curve shifts.

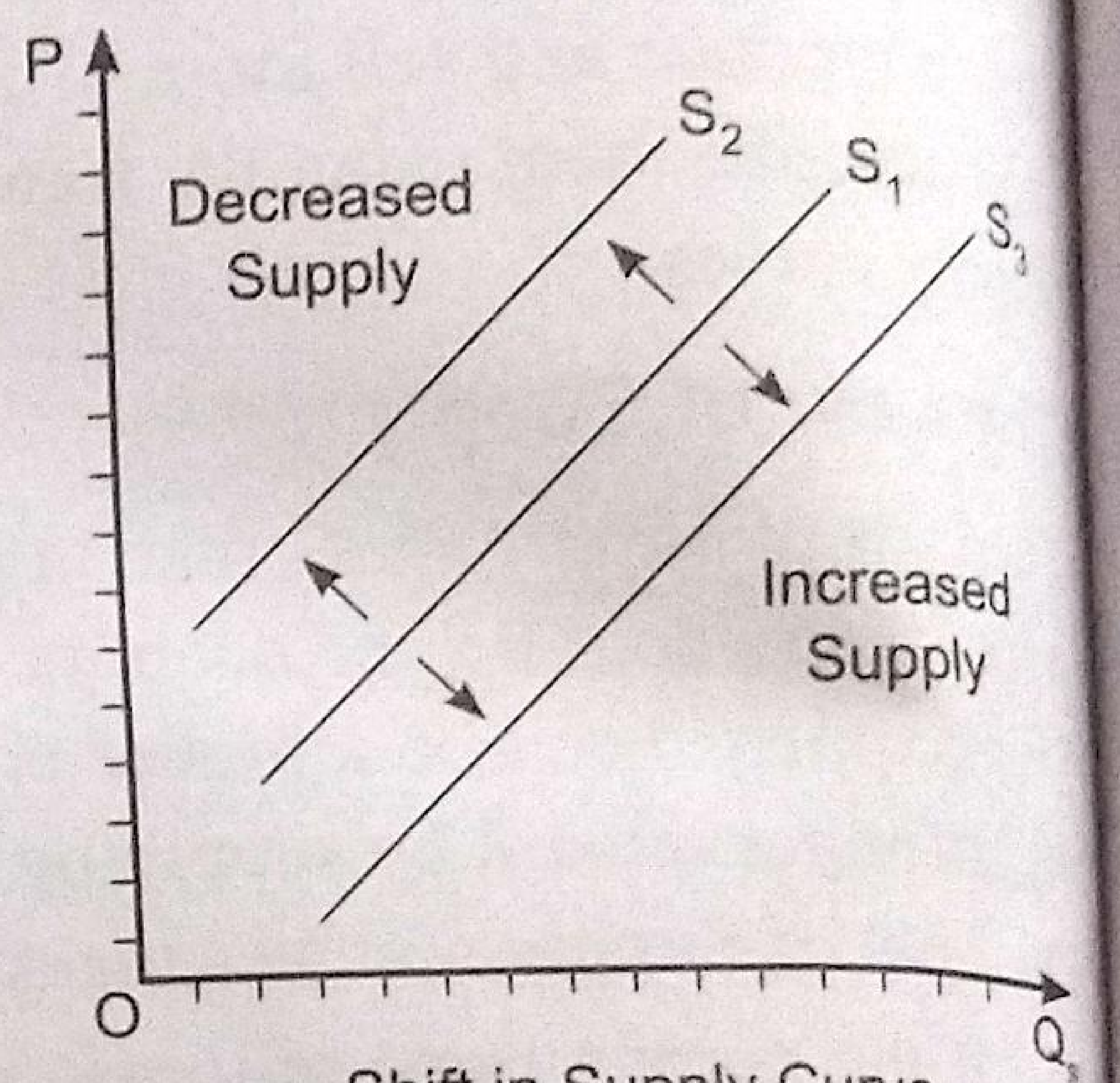
For example:

- If the price of bread rises and bakeries decide to bake more loaves, that is a change in quantity supplied.
- If the cost of flour rises and bakeries produce fewer loaves at every price, that is a change in supply.

Shifts in Supply

Supply can change even when the price of the good stays the same. When this happens, the supply curve shifts.

- If supply increases, the supply curve shifts to the right. At same price, producers supply more than before.
- If supply decreases, the supply curve shifts to the left. At same price, producers supply less than before.



Shift in Supply Curve

Common causes of changes in supply include:

1. **Costs of production**

   Costs include wages, raw materials, electricity, transport, and rent.

   - If production costs rise, supply may fall because it becomes harder to make profit.
   - If production costs fall, supply may rise because production becomes cheaper.

2. **Technology**

   Better technology can make production faster or cheaper.

   - A new machine that packs biscuits more quickly can increase supply.

3. **Number of sellers**

   - If more firms enter the market, supply usually increases.
   - If firms leave the market, supply decreases.

4. **Natural factors and weather**

   Weather is especially important for agriculture.

   - A drought can reduce the supply of crops, shifting supply left.
   - A good monsoon can increase crop supply, shifting supply right.

5. **Government policies**

   Taxes and subsidies affect costs.

   - A tax on sugary drinks increases costs and can reduce supply.
   - A subsidy for solar panels reduces costs and can increase supply.

6. **Expectations about the future**

   Producers also react to what they expect.

   - If sellers expect prices to rise in the near future, they might hold back stock now, reducing supply today.
   - If they expect prices to fall, they may sell more quickly, increasing supply today.

KNOW? During the 1973–74 oil shock, production cuts and an embargo contributed to oil prices rising from about $2.90 a barrel to $11.65 by January 1974—an example of a major leftward shift of supply.

KEY LEARNINGS

- Supply means willingness and ability of sellers to offer goods at different prices over time.
- The Law of Supply says quantity supplied usually rises when price rises, and falls when price falls.
- A change in price causes movement along the supply curve, changing quantity supplied.
- Costs, technology, number of sellers, weather, and policy can shift supply.
- Expectations can change supply today if sellers hold back or release stock.

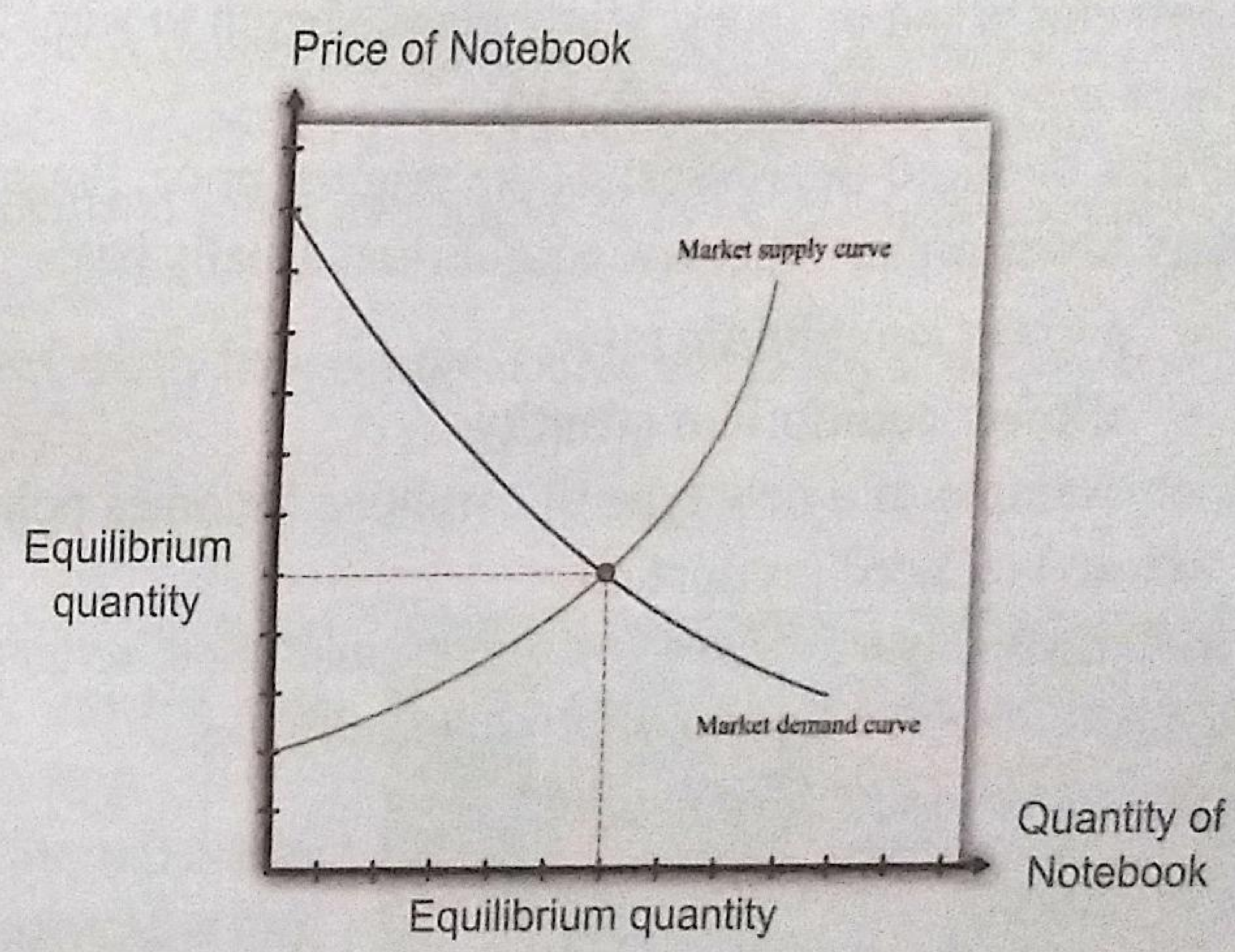
MARKET EQUILIBRIUM

Markets bring together buyers and sellers. The market price and the amount bought and sold are decided by the interaction of demand and supply. When economists talk about equilibrium, they mean a balance point where the plans of buyers and sellers match.

Equilibrium Price and Equilibrium Quantity

The **equilibrium price** is the price at which the quantity demanded equals the quantity supplied. The **equilibrium quantity** is the amount bought and sold at that price.

On a graph, equilibrium is found at the point where the demand curve and the supply curve intersect. This intersection is important because it shows the market outcome when buyers and sellers are free to respond to prices.



Market Equilibrium: Intersection of Demand and Supply Curves

A simple example is a market for notebooks:

- At a high price, fewer students want to buy notebooks, but shops are willing to supply many.
- At a low price, many students want to buy notebooks, but shops are willing to supply fewer.
- At one particular price, the number of notebooks students want to buy matches the number shops want to sell. That is equilibrium.

Equilibrium does not mean that everyone is perfectly satisfied. Some buyers may still think the price is high, and some sellers may still wish the price was higher. It simply means the market clears, so there is no pressure for the price to rise or fall.

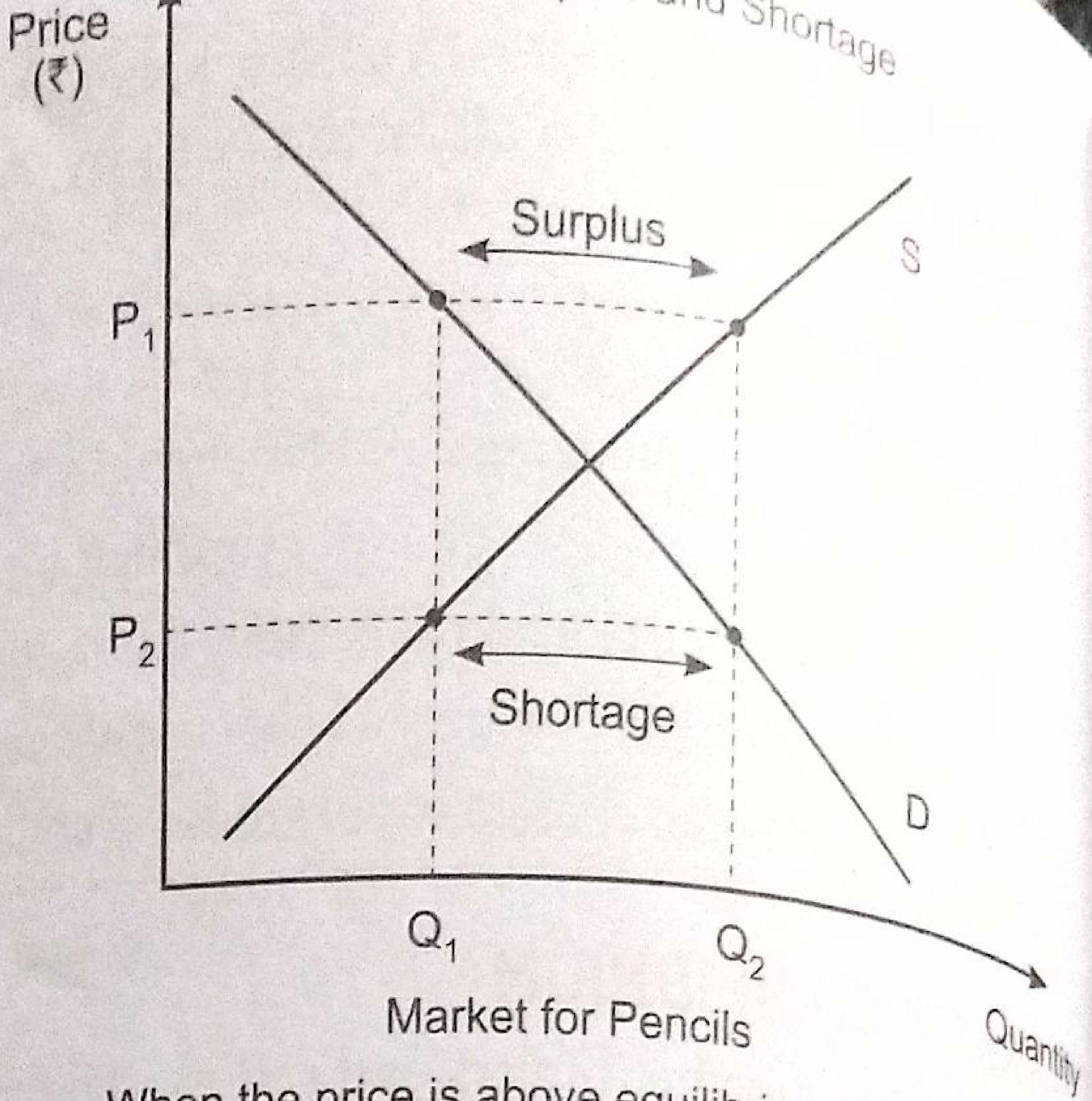
Surplus and Shortage

When the market price is not at equilibrium, markets create either surplus or shortage.

Surplus happens when the price is above equilibrium and quantity supplied is greater than quantity demanded. It means sellers have more goods than buyers are willing to buy at that price. For example, a shop sets the price of winter jackets very high at the start of spring. Few people want to buy, but the shop has a large stock. Jackets remain unsold, creating a surplus.

Shortage happens when the price is below equilibrium and quantity demanded is greater than quantity supplied. It means, buyers want more than sellers are willing to provide at that price. For example, if a canteen sells a popular snack at a very low price, many students may want it, but the canteen may not be able to supply enough. The snack sells out quickly, creating a shortage.

nd Shortage



Market for Pencils

When the price is above equilibrium (P_1), supply is more than demand, which creates a surplus. When the price is below equilibrium (P_2), demand is more .than supply, which creates a shortage

Surplus and shortage create pressure for prices to change:

- A surplus pushes prices downward because sellers want to sell what they have.
- A shortage pushes prices upward because buyers compete to get limited supply.

Changes in Equilibrium

Equilibrium can change when demand or supply changes. This is one of the most important reasons why prices change in real life.

When demand increases: At the original price, more buyers want the good than before, which can cause a shortage. This shortage puts upward pressure on price. The new equilibrium usually has:

- a higher equilibrium price
- a higher equilibrium quantity

For example, a famous sportsperson is seen wearing a particular brand of shoes. Many people begin to want those shoes. Demand increases, prices may rise, and more shoes may be produced and sold.

When demand decreases: At the original price, fewer buyers want the good, which can create a surplus. Sellers may lower prices. The new equilibrium usually has:

- a lower equilibrium price
- a lower equilibrium quantity

For example, if a new type of earphone becomes popular, demand for an older model may fall, leading to price cuts and reduced production.

When supply increases: At the original price, sellers offer more than before, which can create a surplus. Prices tend to fall. The new equilibrium usually has:

- a lower equilibrium price
- a higher equilibrium quantity

For example, a good harvest increases the supply of vegetables. With more vegetables available, prices fall and people buy more.

When supply decreases: At the original price, sellers provide less than before, which can cause a shortage. Prices tend to rise. The new equilibrium usually has:

- a higher equilibrium price
- a lower equilibrium quantity

For example, if a disease harms poultry farms, the supply of eggs may fall. Egg prices can rise and fewer eggs may be sold.

KEY LEARNINGS

- Equilibrium occurs where quantity demanded equals quantity supplied.
- Surplus happens when price is above equilibrium and goods remain unsold.
- Shortage happens when price is below equilibrium and goods sell out quickly.
- An increase in demand usually raises equilibrium price and quantity.
- A decrease in supply usually raises equilibrium price but lowers equilibrium quantity.

WHEN MARKETS DO NOT FOLLOW SIMPLE THEORY

The laws of demand and supply are very useful, but real life markets can behave differently from the simplest textbook picture. Sometimes buyers do not reduce buying much when prices rise. Sometimes sellers cannot respond quickly to higher prices. Sometimes a good has special features that change how people react.

Necessities and Luxuries

Not all goods are equally easy to reduce or increase in daily life. The response of buyers depends on how essential the good is.

Necessities are goods that people feel they must have to maintain basic living standards, such as staple foods, basic medicines, or essential transport. When the price of a necessity rises, people may not be able to reduce consumption much, because there is no easy replacement.

For example, if the price of a basic medicine rises, patients may still buy it because it is needed for health. In such cases, demand still follows the Law of Demand, but the fall in quantity demanded may be small.

Necessities

Luxury goods

Luxury goods are goods that people can live without, such as expensive branded clothing, high end electronics, or costly restaurant meals. When the price of a luxury rises, buyers can often reduce buying more easily. Luxury goods often have more substitute choices. This makes demand more responsive to price changes compared to necessities.

For example, if the price of an expensive designer bag rises, many buyers may decide not to buy it or may choose a different brand.

Perishable Goods

Some goods spoil quickly, such as fresh fish, milk, vegetables, or baked items. These are called perishable goods. Perishability creates time pressure for sellers, and this can cause unusual price behaviour.

If a seller has perishable goods that must be sold today, the seller may reduce prices near the end of the day to avoid waste. For example, a fruit seller may lower the price of bananas in the evening to sell them before they become overripe.

Perishable Goods

Perishability can also affect buyers. If buyers know that prices usually fall later, they might wait, which can reduce demand earlier in the day and increase demand later. This can create price changes within a short time period.

Engage and Reflect

Visit a local market (or observe an online marketplace). Choose two goods: one perishable (fruits/vegetables) and one non-perishable (rice/soap). Observe or ask:

- Price at opening time vs closing time
- If the seller changes price when there are fewer buyers
- What happens to perishable goods at the end of the day

Write:

1. Which good shows faster price changes and why?
2. What does this show about supply conditions and perishability?

Expectations

People often make buying and selling decisions based on what they expect will happen in the future. Expectations can change demand and supply.

Expectations affecting demand: If consumers expect prices to rise soon, they may buy more now, which can increase demand. For example, if people hear that the price of cooking gas may rise next month, they may refill sooner, increasing demand.

If consumers expect prices to fall soon, they may delay purchases, which can decrease demand. For example, if a buyer expects a phone model to become cheaper during a sale, they may wait, reducing current demand.

Expectations affecting supply: Sellers also respond to expectations. If sellers expect prices to rise soon, they may hold back goods, which can reduce supply. For example, a trader may store onions if a price rise is expected, so fewer onions reach the market.

If sellers expect prices to fall, they may sell more quickly, which can increase supply. For example, a shop may clear its stock of old shoes before a new model arrives, increasing supply at current prices.

KEY LEARNINGS

- Necessities often show a smaller fall in demand when prices rise.
- Luxury goods usually show a larger fall in demand when prices rise.
- Perishable goods can lead to price cuts because sellers want to avoid waste.
- Expectations about future prices can increase or reduce demand and supply today.
- Speculation can sometimes increase price changes when many react to predictions or rumours.

PRICE CONTROLS

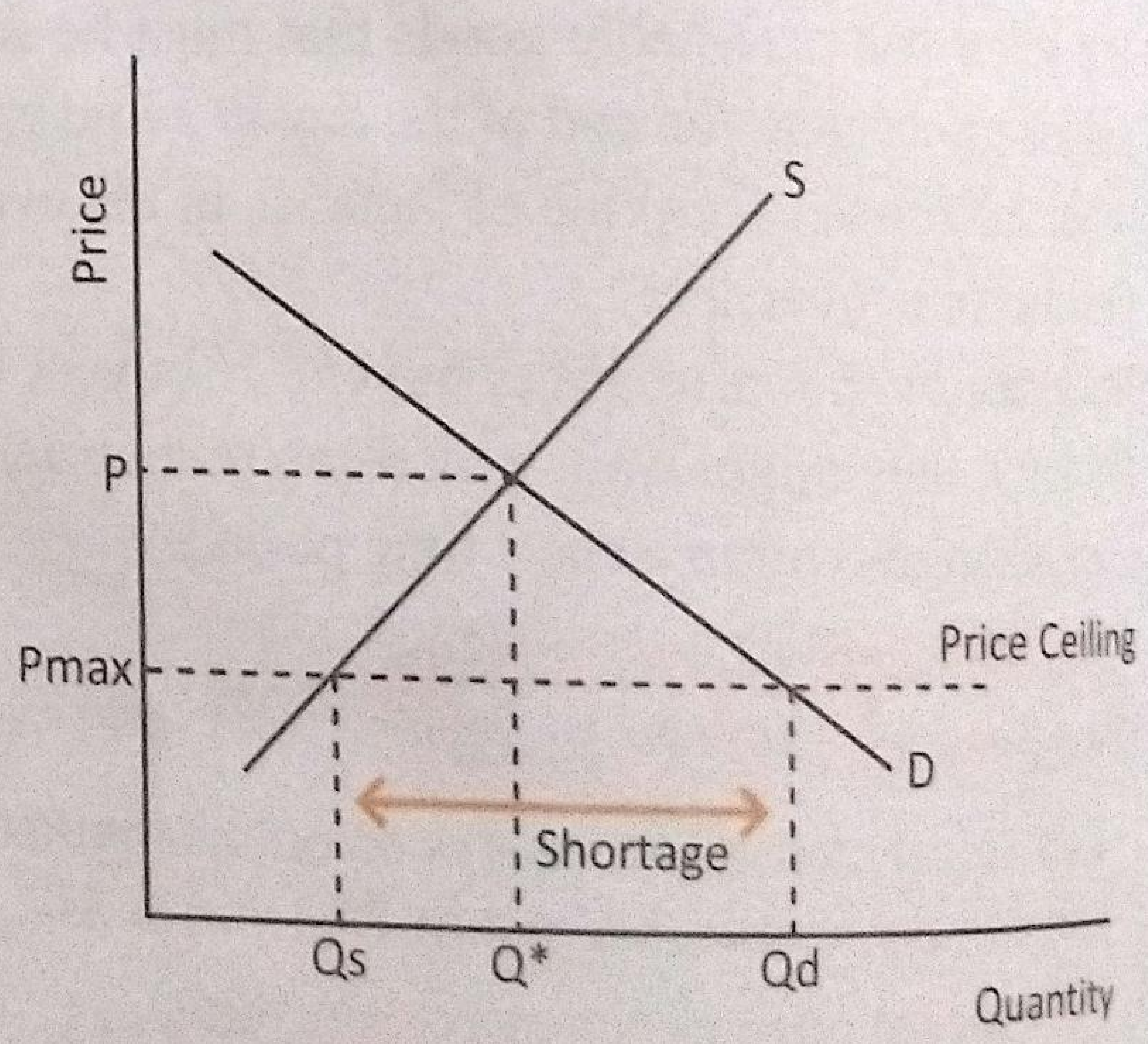
Sometimes governments intervene in markets instead of allowing prices to adjust freely. One common intervention is a price ceiling. Price ceilings are usually used when a good is considered essential and the government wants it to be affordable for more people. However, if a price ceiling is set too low, it can create problems such as shortages and black markets.

What is a Price Ceiling?

A **price ceiling** is a legal maximum price that sellers are not allowed to charge for a good or service. The main aim is to protect consumers from high prices.

Price ceilings may be used for goods such as:

- basic food items
- medicines
- public transport fares
- rent in housing markets



Price ceiling leading to shortage in the market

A price ceiling only has a strong effect if it is set below the equilibrium price. If the equilibrium price of a product is ₹50 and the government sets a price ceiling of ₹55, the ceiling does not change the market because sellers were not charging above ₹55 anyway. But if the government sets a ceiling of ₹40, it forces the price below the market equilibrium.

When a price ceiling is below equilibrium:

- the price becomes lower than what the market would naturally set

- consumers want to buy more at the lower price
- producers may supply less because the price is less attractive

This situation often leads to a shortage.

Shortages in Market

When the price ceiling is below equilibrium, quantity demanded becomes greater than quantity supplied. This creates a **shortage**.

Suppose the market price of cooking oil would normally be ₹200 per litre, but a price ceiling sets the maximum price at ₹150. At ₹150:

- more families want to buy cooking oil because it is cheaper
- some producers and sellers may reduce supply because profit per unit is lower
- the result is not enough cooking oil for everyone who wants it

When shortages appear, price is no longer doing its normal job of balancing demand and supply. Instead, other methods may decide who gets the good.

Common results of shortages include:

- **Queues and waiting time:** People may have to stand in long lines to buy the product. Time becomes the cost instead of money.
- **Rationing:** Shops or authorities may limit how much each person can buy, such as one packet per customer or a fixed amount per household. Rationing can prevent a few people from buying everything, but it can also be difficult to organise fairly.
- **Falling quality or reduced service:** Sellers might respond by reducing quality instead of increasing the price. For example, landlords under strict rent ceilings may spend less on maintenance because they cannot charge higher rent.

Shortages lead to queues and waiting time

In each case, the price ceiling changes the market outcome. Even though the product is cheaper, it may be harder to find.

Black Markets

A black market is an illegal market where goods are bought and sold at prices higher than the legal price. Black markets often appear when a price ceiling creates a shortage.

Why can this happen?

- Some buyers are willing to pay more than the legal price to avoid queues or to ensure they get the product.
- Some sellers want to earn higher profit than the ceiling allows.
- Because the good is scarce, some people may buy extra and resell it illegally at higher prices.

For example, if a price ceiling keeps the price of a ticket low but tickets are limited, some people might buy tickets and then sell them at a much higher price outside the legal system.

Price ceilings can also lead to other unintended outcomes:

- **Corruption:** If goods are scarce, people might try to use connections or bribery to obtain them.
- **Hoarding:** People may buy more than they need because they fear the good will not be available later. This makes shortages worse.
- **Misallocation:** Goods might not reach the people who need them most, because the system cannot use price to guide distribution.

This does not mean that price ceilings are always useless. They can protect consumers in emergencies, but governments often need other policies alongside ceilings, such as increasing supply, improving distribution, or using well organised rationing.

KEY LEARNINGS

- A price ceiling is a legal maximum price set by the government.
- If set below equilibrium, it can create a shortage because demand exceeds supply.
- Shortages can lead to queues, rationing, and reduced quality or service.
- Black markets may develop where goods are sold illegally above the legal price.
- Price ceilings may need extra measures, such as better supply and fair distribution.

MARKET FAILURE

In many markets, prices guide resources in a useful way. When demand rises, prices rise and firms supply more. When demand falls, prices fall and firms supply less. However, there are situations where markets do not produce the best outcomes for society. Economists call this problem **market failure**.

Market failure happens when the market price does not fully reflect the real costs and benefits of producing and consuming a good or service. As a result, too much or too little of something may be produced or consumed.

Externalities

An **externality** is a side effect of production or consumption that affects people who are not directly involved in the market transaction. Externalities can be positive or negative.

Negative externalities arise when an economic activity imposes costs on third parties who are not directly involved in the transaction. A common example is pollution: a factory may produce goods and earn revenue, yet it may also emit smoke that harms the health of nearby residents. Because the factory and its customers do not bear the full social cost of this damage, the market price of the product can be artificially low. As a result, too many resources are allocated to producing the good, leading to overproduction relative to the socially efficient level.

Positive externalities occur when an economic activity generates benefits for others beyond those enjoyed by the buyer and seller. Vaccination highlights this clearly: an individual who is vaccinated gains personal protection, while other people also benefit because the disease is less likely to spread. However, since these wider benefits are not fully reflected in private decisions, the market may provide too little vaccination. Consequently, the quantity exchanged in the market can fall below the socially desirable level.

In both cases, the market outcome can differ from what is best for society because the price signal is incomplete.

DID YOU KNOW?

A Pigouvian tax, named after 1920 British economist Arthur C. Pigou, is a tax on a market transaction that creates a negative externality, or an additional cost, borne by individuals not directly involved in the transaction. Examples include tobacco taxes, sugar taxes, and carbon taxes.

Information Asymmetry

A market works better when buyers and sellers have good information. Information asymmetry happens when one side of the market has more or better information than the other.

This can cause unfair deals and poor decisions. For example, a shop might exaggerate the quality of a product, while customers cannot easily check the truth before buying.

Information asymmetry can lead to two key problems:

- **Low trust:** Buyers may become suspicious and stop buying, even from honest sellers.
- **Bad quality driving out good quality:** If buyers cannot tell quality apart, they may only be willing to pay an average price. Then sellers of high quality goods may leave the market because the price is not worth it.

Governments and organisations sometimes reduce information problems through rules such as labelling, safety standards, and consumer protection laws.

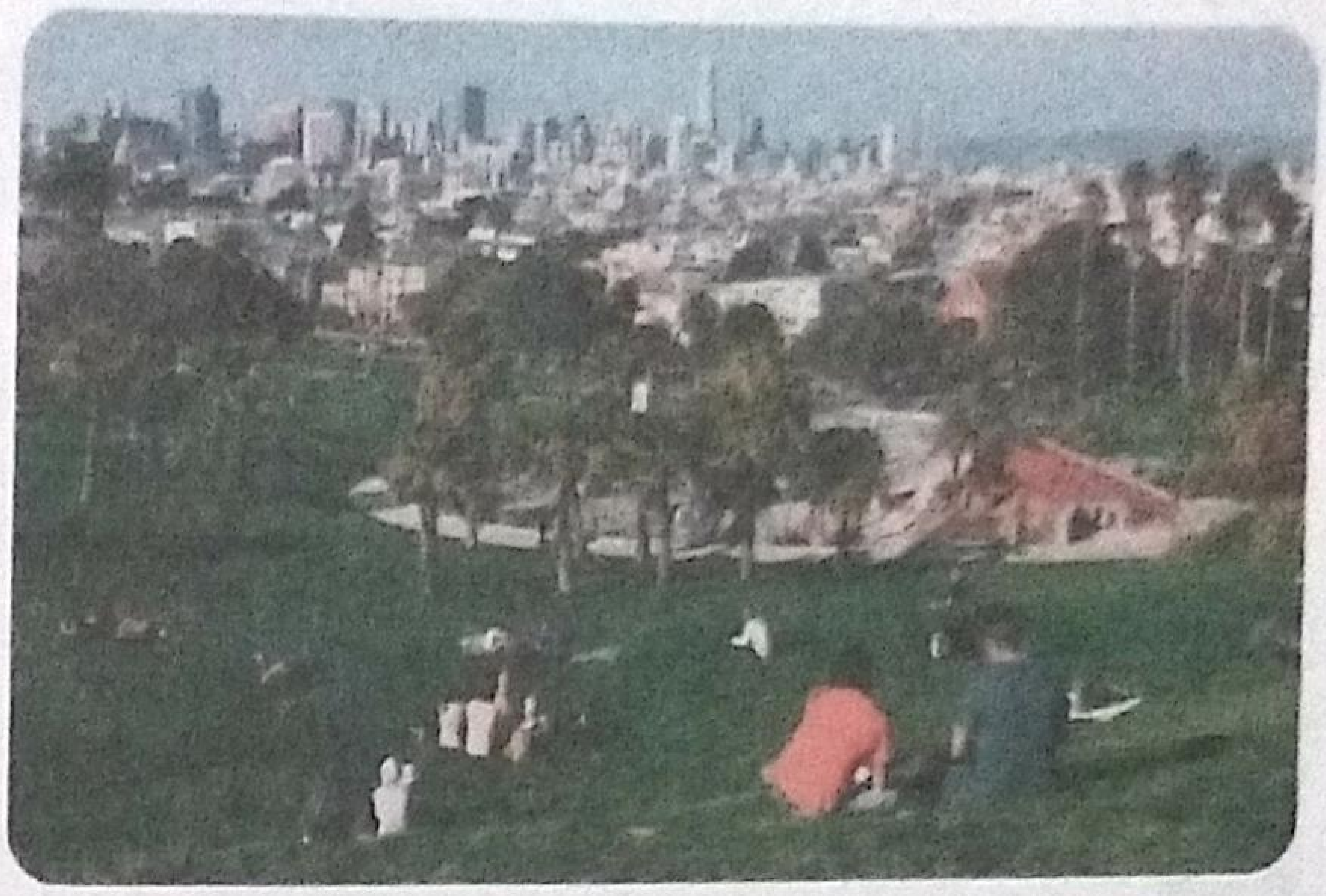
DID YOU KNOW? The 2001 Economics Nobel Prize went to Akerlof, Spence and Stiglitz for analysing markets with asymmetric information.

Public Goods

A public good is a product or service that is both non-excludable and non-rivalrous.

Non excludable means it is difficult or impossible to stop people from using the good, even if they have not paid for it. For example, a street lighting benefits anyone walking on the road at night. It is not easy to exclude only those who have paid.

Non rival means that one person using the good does not reduce the amount available for others. For example, one person walking through a public park does not stop others from walking there too.



Park is a type of Public Goods

Why Markets Under Provide Public Goods

Private firms usually supply goods to earn profit. They need customers to pay, otherwise they cannot cover costs. Public goods create a problem because of non excludability.

If people can use a good without paying, many may choose to avoid paying and still enjoy the benefit. This behaviour is called **free riding**. For example, consider a neighbourhood park a private company could build and maintain the park, but it would need money from users. Because the park is open, people may enter without paying. If many people do this, the company does not collect enough money to maintain the park.

As a result, private markets often provide too little of a public good, or none at all. Even if some people are willing to pay, they may think it is unfair to pay when others can use the same good for free.

This is why public goods are considered a market failure. The market does not fully match society's needs because the price system cannot work properly when payment cannot be enforced.

AN EXCERPT

WHAT ARE PUBLIC GOODS?

The topic of this module is "public goods" - both in concept and concretely in daily life. Public goods are "...things [that] do not lend themselves to [private] production, purchase and sale. They must be provided for everyone if they are to be provided for anyone, and they must be paid for collectively or they cannot be had at all."2 This definition, by John K. Galbraith, is similar but not identical to other definitions that are put forward in economic theory. Definitions matter, as you will see; if health care, libraries, schools, roadways, and drinking water are considered to be public goods they will be produced by governments. If they are considered to be private goods, they will be produced by private, for-profit actors and made available through markets. This means that those who can pay the price will have access to these things, and those who cannot pay will not get them.

Public goods are produced by public sector agents – government agencies, public authorities, public universities, etc. – not by businesses, civil society, NGOs, households or individuals. Goods produced by such entities that may be enjoyed by the public can be called "social goods" but they are not public goods. The distinguishing characteristics of public goods are that they are created through collective choice (voting) and are paid for collectively (public financing).

Source: Public Goods in Everyday Life By June Sekera

KEY LEARNINGS

- Market failure happens when market outcomes are not best for society.
- Externalities occur when third parties are affected by production or consumption.
- Information asymmetry arises when buyers and sellers have unequal information.
- Public goods are non excludable and non rival, so many can benefit at once.
- Private firms often under provide public goods due to difficulty collecting payment.

GLOSSARY

Law of Demand	When price rises, quantity demanded usually falls, and when price falls, quantity demanded usually rises, other things unchanged.
Law of Supply	When price rises, quantity supplied usually rises, and when price falls, quantity supplied usually falls, other things unchanged.
Equilibrium	The market situation where quantity demanded equals quantity supplied at a particular price and quantity.
Price Ceiling	A legal maximum price set by the government; if below equilibrium it can cause shortages and other problems.
Market Failure	When a market does not allocate resources efficiently because prices do not reflect true costs or benefits to society.
Externality	A positive or negative effect of a market activity on others who are not part of the buying and selling decision.
Information Asymmetry	When one side of a transaction has more or better information than the other, leading to unfair or inefficient outcomes.
Public Good	A good that is non-excludable and non-rival, such as parks or street lighting, so markets often under provide it.

Exercises

A. Multiple choice questions (MCQ's).

1. The law of demand says that, other things being equal, when price rises:
   (a) quantity demanded rises (b) quantity demanded falls
   (c) demand curve shifts right (d) supply curve shifts left
2. Market equilibrium occurs when:
   (a) demand is greater than supply (b) supply is greater than demand
   (c) quantity demanded equals quantity supplied (d) price is set by the government
3. If the market price is above equilibrium price, the market will face:
   (a) shortage (b) surplus
   (c) equilibrium (d) black market automatically
4. A price ceiling is:
   (a) a minimum legal price (b) a maximum legal price
   (c) the equilibrium price (d) a price fixed by producers only
5. Pollution from a factory affecting nearby residents is an example of:
   (a) public good (b) information asymmetry
   (c) externality (d) surplus

6. Which of the following statement(s) are true with respect to a shift in demand?
   I. Demand can increase due to a rise in consumer preference for a product.
   II. Demand can decrease if the price of a substitute rises.
   III. Demand for a normal good generally increases when income increases.
   IV. Demand can change even if the price of the good itself remains the same.

   Choose the correct option:

   A. I and IV
   B. I, III and IV
   C. II and III
   D. I, II and IV

7. Which of the following statement(s) are true with respect to price ceiling and market outcomes?
   I. A price ceiling is the maximum legal price fixed by the government.
   II. If a price ceiling is set below equilibrium price, it may create shortages.
   III. A price ceiling set above equilibrium price always creates shortages.
   IV. Price ceilings are often used for essential goods to keep them affordable.

   Choose the correct option:

   A. I and II
   B. I, II and IV
   C. II and III
   D. I and III

8. Match the following and choose the correct option.

	Column A	Column B
1.	Demand	**A.** Unwanted effect of production/consumption on others
2.	Supply	**B.** Situation where quantity supplied is more than quantity demanded
3.	Surplus	**C.** Buyers' willingness and ability to purchase at different prices
4.	Externality	**D.** Sellers' willingness and ability to offer at different prices

Options:

(a) 1–C, 2–D, 3–B, 4–A
(b) 1–D, 2–C, 3–A, 4–B
(c) 1–B, 2–A, 3–D, 4–C
(d) 1–A, 2–B, 3–C, 4–D

B. Fill in the Blanks.

1. When the price of a good falls, the quantity demanded generally __________.
2. The curve that shows the relationship between price and quantity demanded is called the __________ curve.
3. The point where demand and supply intersect is called the market __________.
4. When the market price is below equilibrium price, it leads to a __________.
5. Goods like street lighting are called __________ goods because everyone can use them.

C. Match the Following

	Column A	Column B
1.	Necessities	A. Maximum legal price fixed by the government
2.	Luxuries	B. Situation where quantity supplied is more than quantity demanded
3.	Equilibrium	C. Goods that people feel they must have to maintain basic living standards.
4.	Surplus	D. Point where quantity demanded equals quantity supplied
5.	Price ceiling	E. Goods that people can live without.

D. Very Short Answer Questions

1. Define demand.
2. State the Law of Supply.
3. What is equilibrium quantity?
4. What is shortage?
5. What are necessities?
6. Define externalities.
7. What is a price ceiling?
8. What is market failure?

E. Short Answer Questions

1. What is meant by demand in economics? Mention any two factors that affect demand.
2. What is the difference between a change in quantity demanded and a change in demand?
3. What do you understand by market equilibrium? How is equilibrium price determined?
4. Distinguish between surplus and shortage
5. Why do black markets arise?

F. Long Answer Questions

1. What are public goods? Explain their main characteristics and why the private market may not supply them in sufficient quantity.
2. State and explain the law of demand. Also describe any three situations where the law of demand may not work in the usual way.
3. Explain externalities in detail. Distinguish between positive and negative externalities, and give suitable examples of each.
4. Explain price controls. What is a price ceiling? Discuss its effects on the market, such as shortages, rationing, and black marketing.
5. Explain the concept of supply and state the law of supply. Discuss the factors that can change supply in a market.

G. Assertion–Reason questions.

There are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below.

(a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(c) (A) is correct but (R) is wrong
(d) (A) is wrong but (R) is correct

1. **Assertion:** A change in the price of a good causes a shift in its demand curve.
   Reason: A change in the price of the same good leads to movement along the demand curve.
2. **Assertion:** Market equilibrium does not occurs when quantity demanded equals quantity supplied.
   Reason: At equilibrium, there is no tendency for the price to change unless demand or supply changes.
3. **Assertion:** Public goods are usually underprovided by private markets.
   Reason: People can benefit from public goods after paying.
4. **Assertion:** If the market price is above the equilibrium price, a surplus is created in the market.
   Reason: At a higher price, quantity supplied becomes greater than quantity demanded.

H. Case-based questions.

Read the following case and answer the questions:

Nashik: The average wholesale price of the new kharif onions surged significantly by 55% at Lasalgaon APMC — from ₹ 2,000 per quintal on Saturday to ₹ 3,100 per quintal on Dec 01, 2025.

Around 2,400 quintals of the new kharif onions were auctioned on Monday with the minimum wholesale price recorded at ₹ 500 per quintal and maximum reaching to ₹ 4,300 per quintal.

An APMC official said the rapid increase in the average wholesale price is due to a substantial drop in the supply of the crops relative to the market demand.

"There is a rise in demand for export which puts additional pressure on the available stock. A contributing factor is also the buying activity of some firms who are purchasing the new Kharif onions for the purpose of making seeds. The combination of limited arrivals, increased export demand and seed procurement collectively led to the notable rise in the average wholesale onion prices," the official said.

According to traders, the supply is still low as harvesting has just begun, pushing up the rates sharply.

Source: Times of India

1. Identify whether the situation is a shortage or surplus. Give one reason from the case.
2. Why did prices increased when demand increased? Explain using demand and supply.
3. How does perishability affect farmers' selling decisions and market price?

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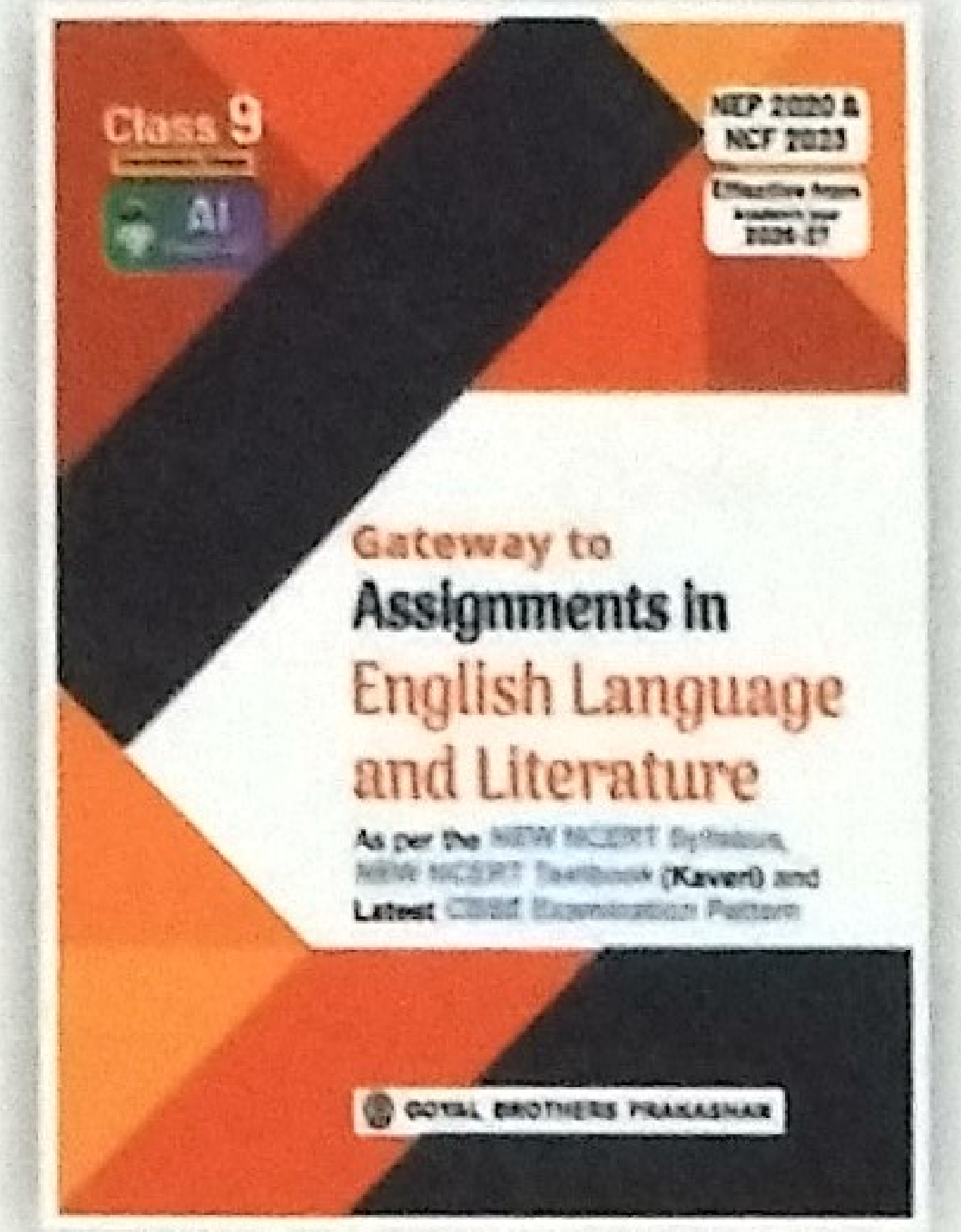
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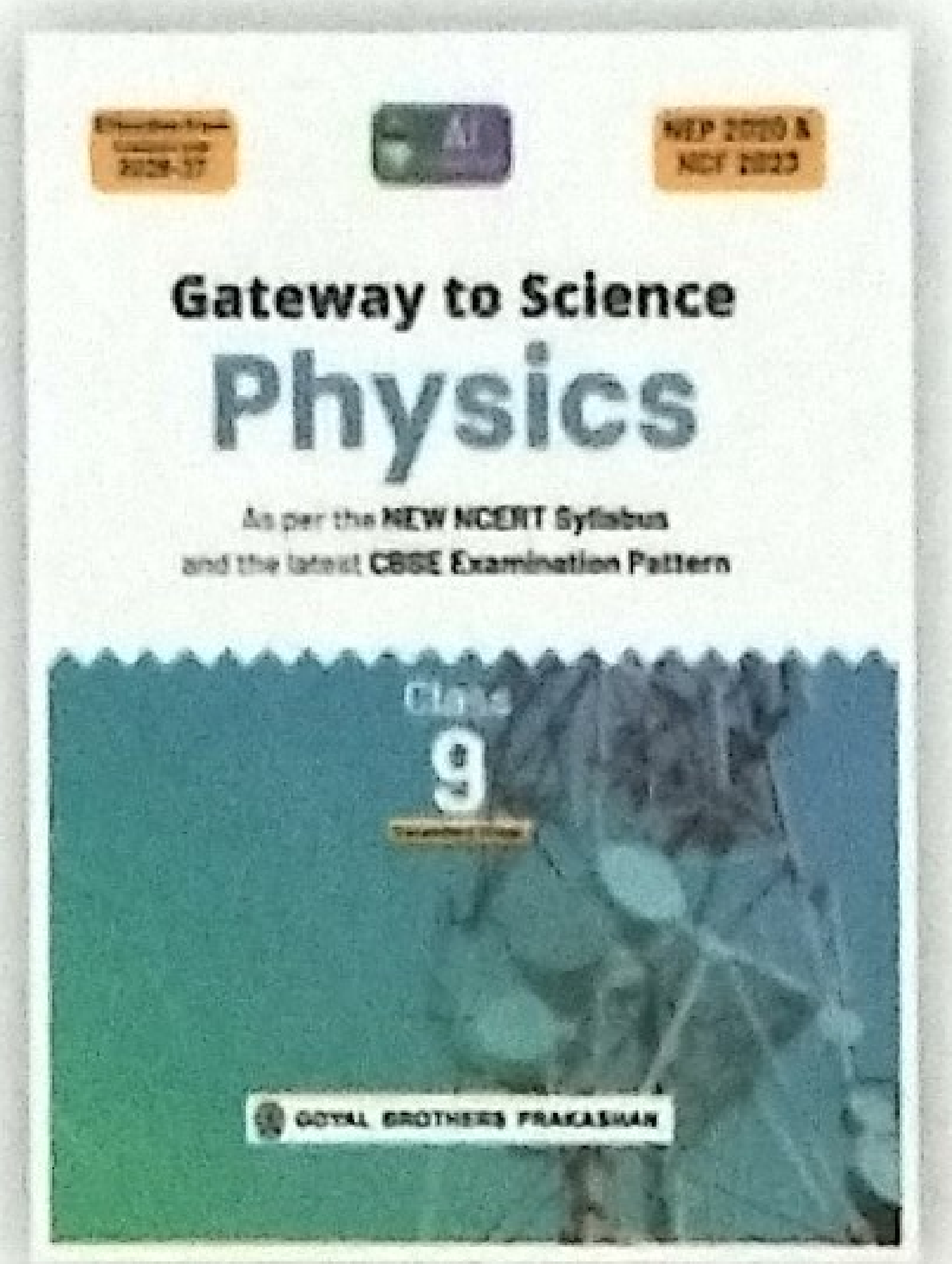
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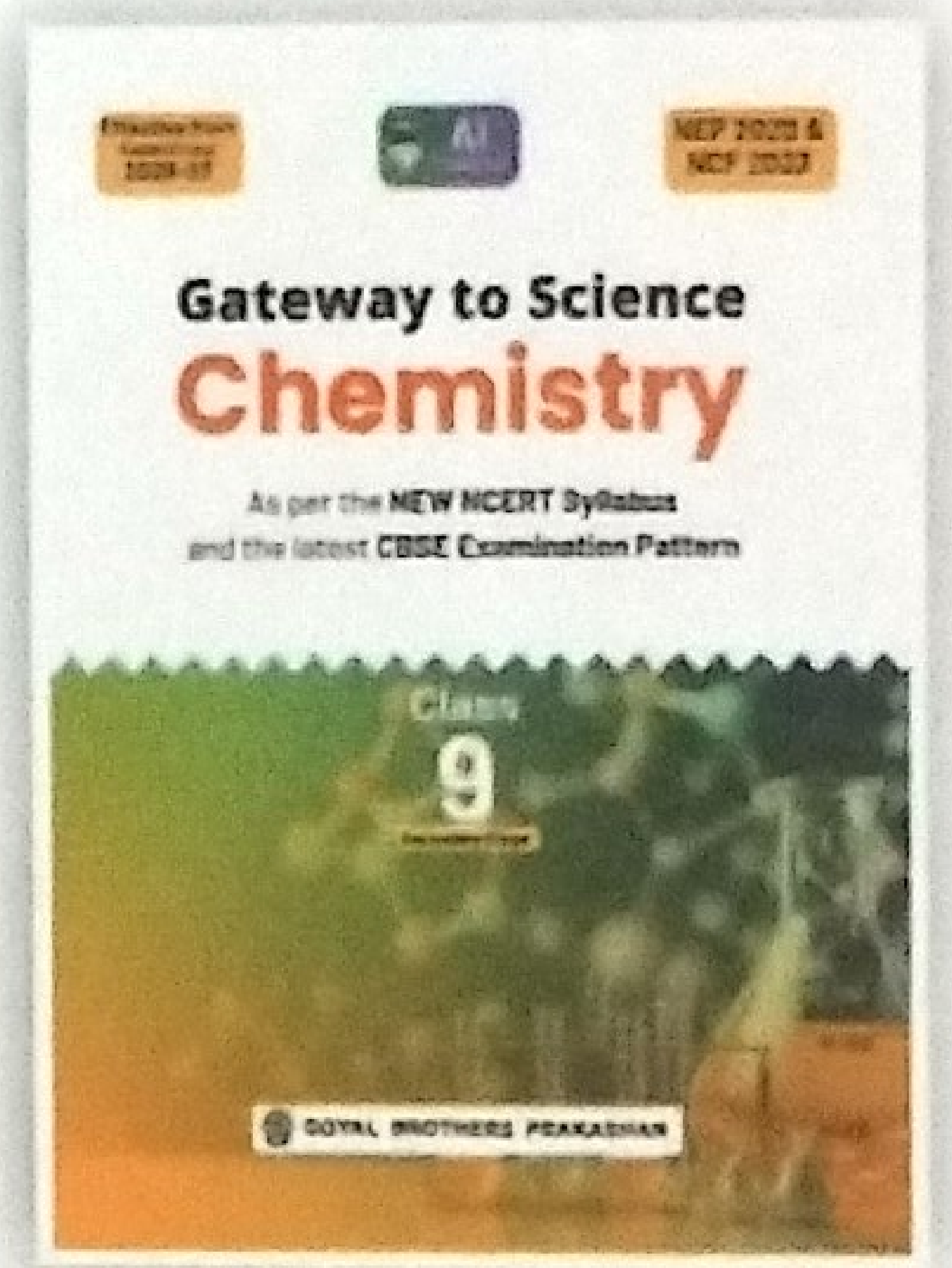
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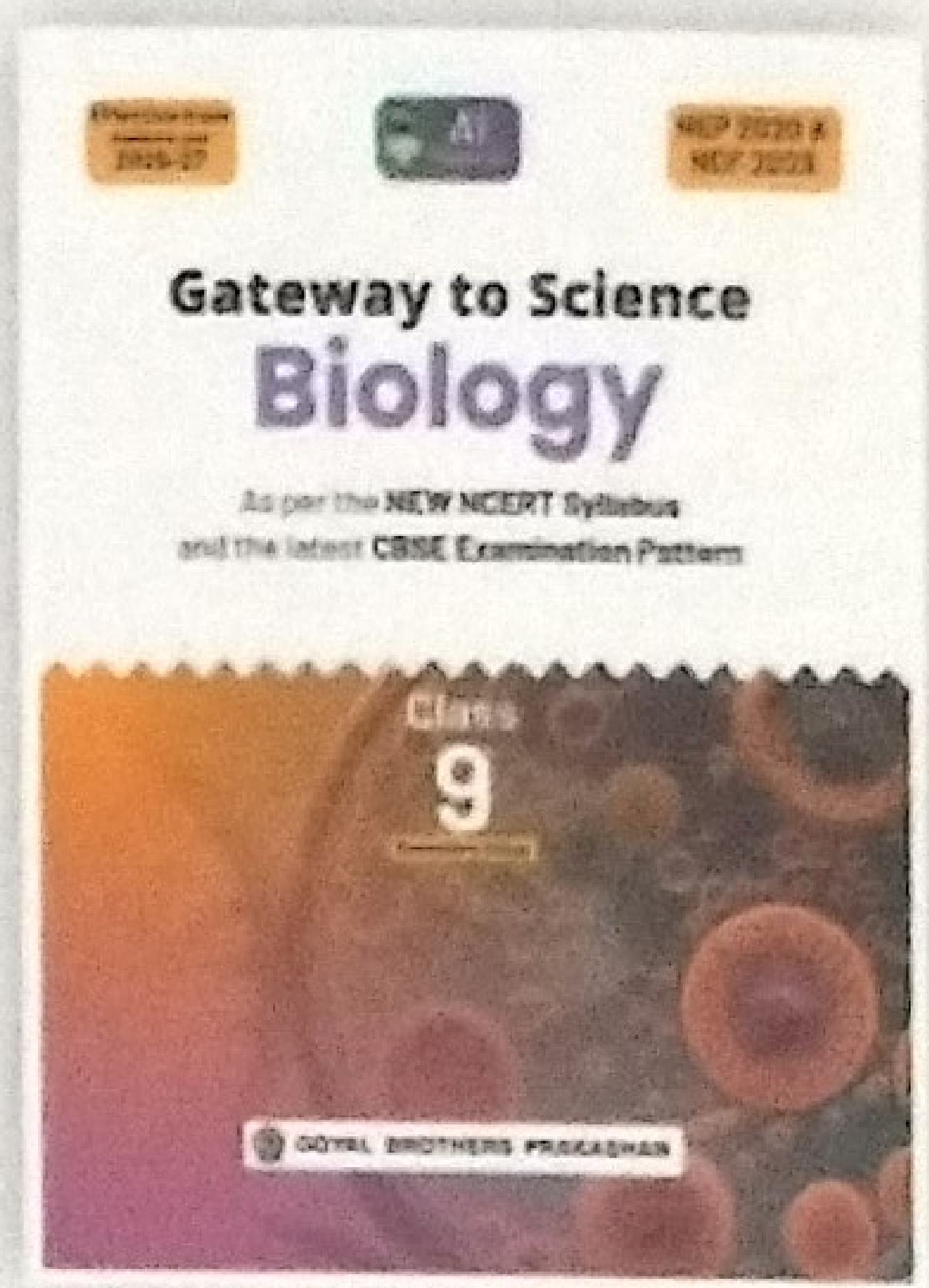
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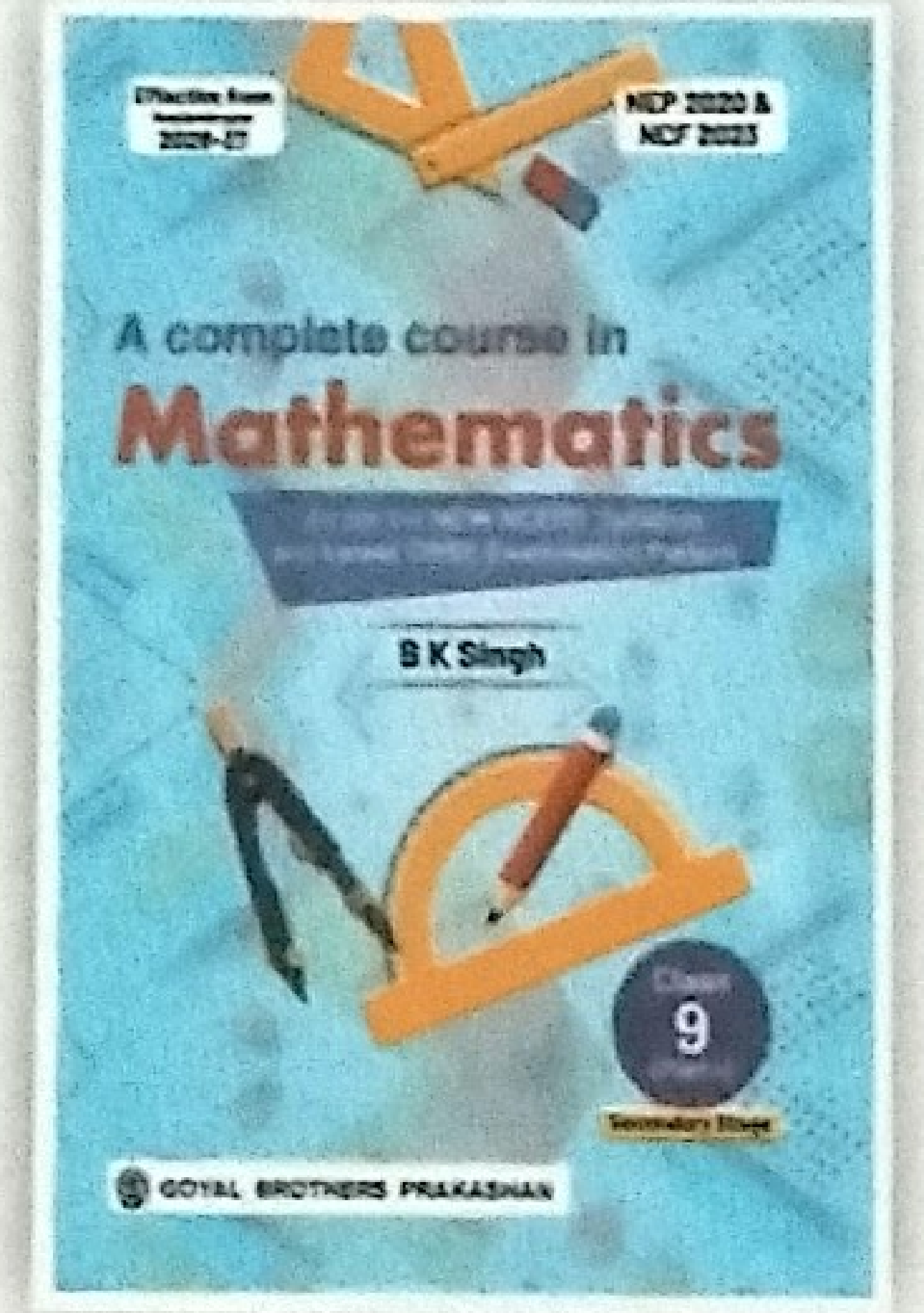
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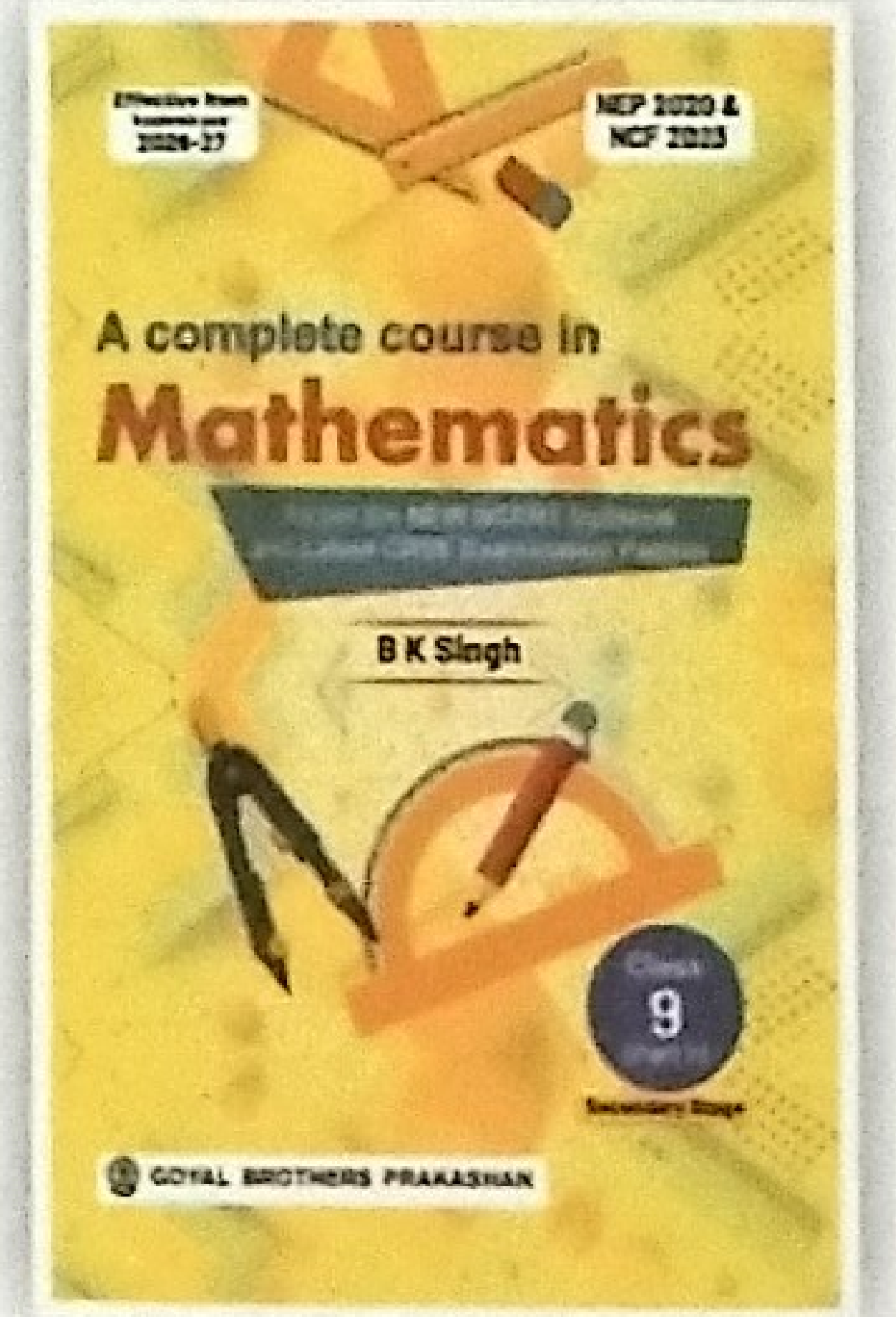
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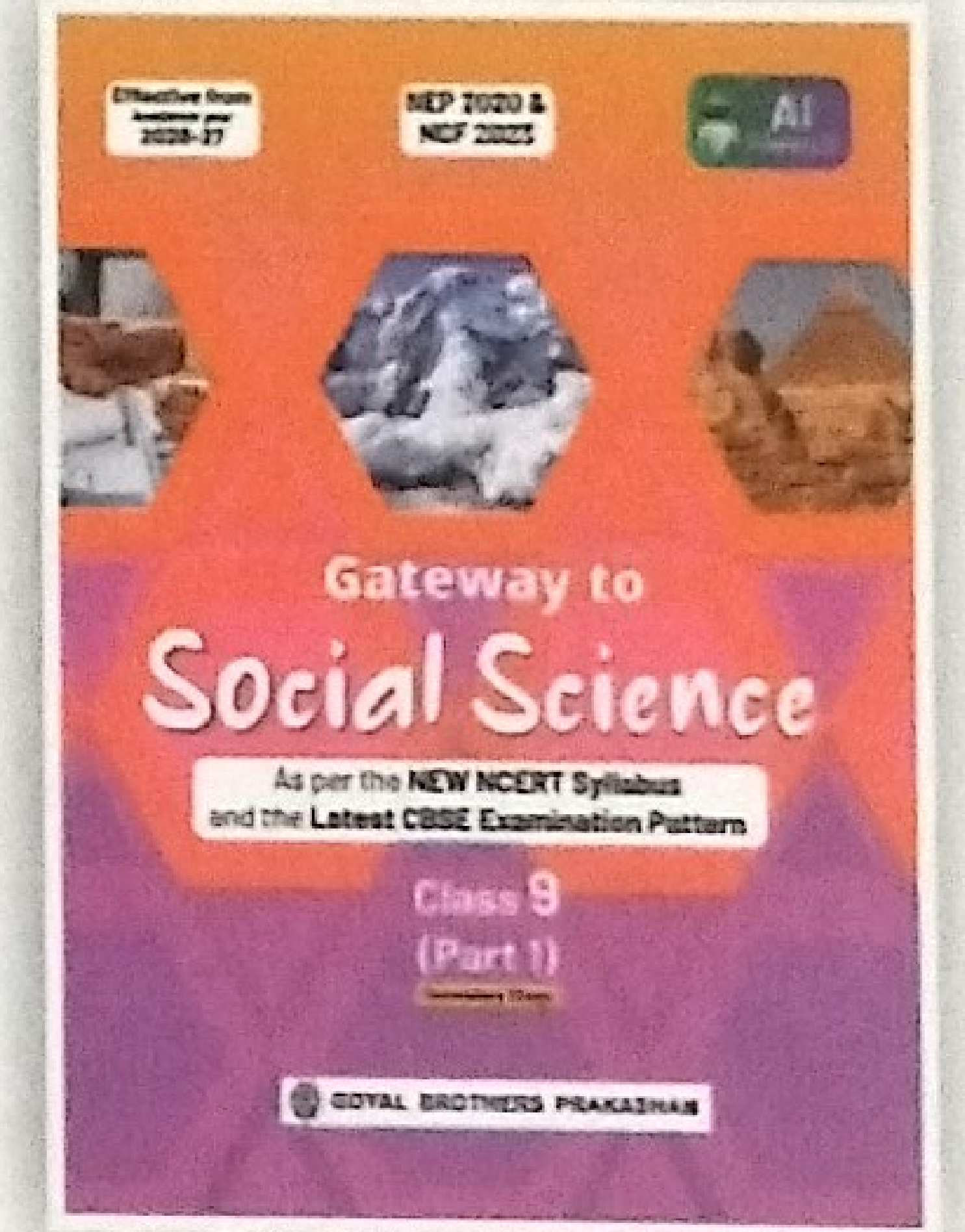
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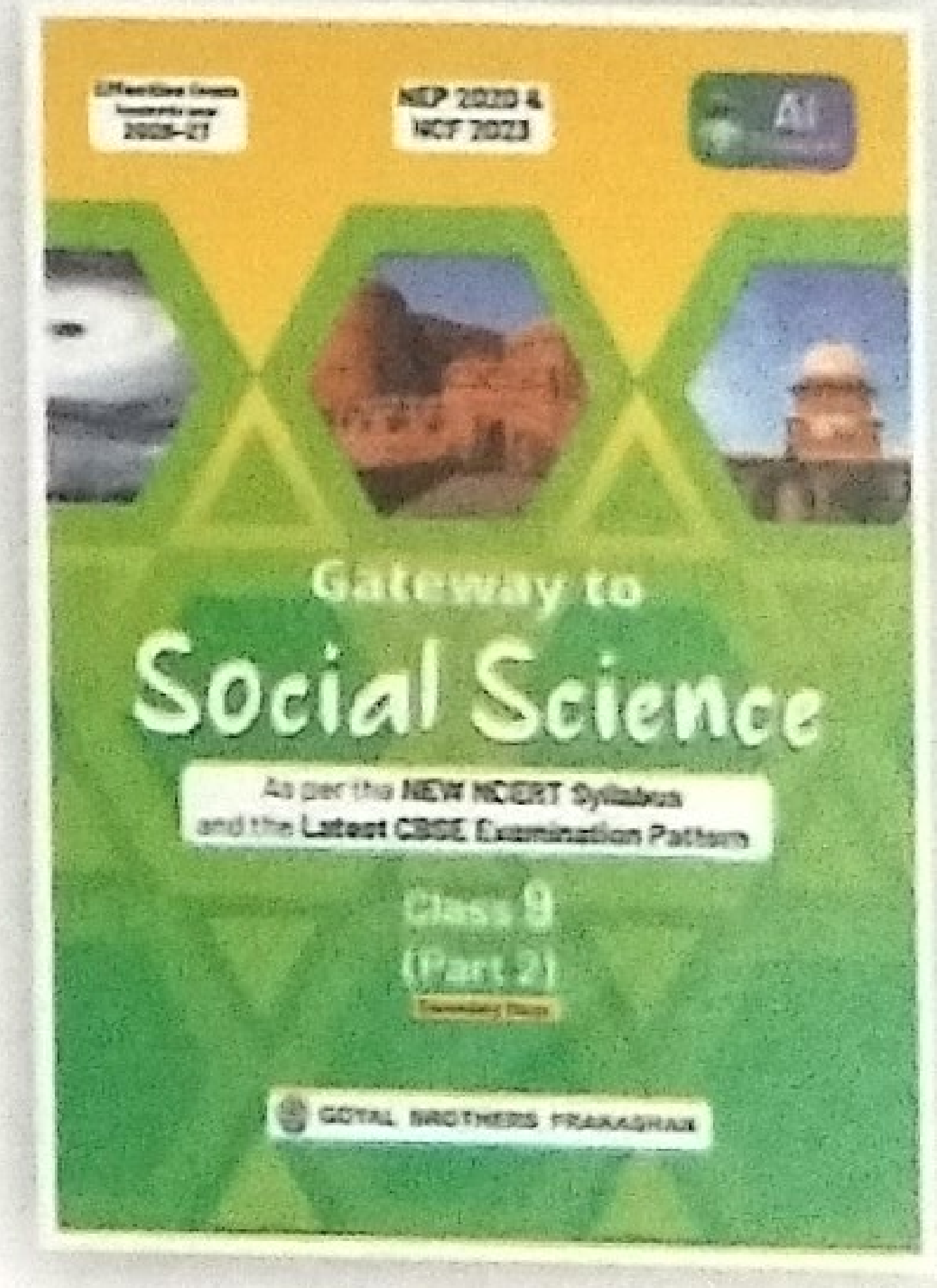
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